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THE

ORCHID REVIEW

An Illustrated Monthly Journal

DEVOTED TO ORCHIDOLOGY

EDITED BY R. ALLEN ROLFE, A.L.S.

VOLUME XXII.

1914.

KEW:
FRANK LESLIE & CO., 12, LAWN CRESCENT.

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TO

SIR JEREMIAH COLMAN, BART., V.M.H.,

VICE-CHAIRMAN OF THE ORCHID COMMITTEE OF THE

ROYAL HORTICULTURAL SOCIETY,

ONE OF OUR MOST ENTHUSIASTIC AMATEURS

AND

MOST SUCCESSFUL RAISERS OF HYBRID ORCHIDS,

THIS TWENTY-SECOND VOLUME OF THE "ORCHID REVIEW."

IS CORDIALLY DEDICATED.

Kew,
December, 1914.

VOL. XXII. JANUARY, 1914. No. 253.

THE ORCHID REVIEW

Edited by R. ALLEN ROLFE, A.L.S.

CONTENTS:

	PAGE
Amateur's Collection	29
Answers to Correspondents	32
Brassavola Digbyana and its hybrids	5
Calendar of Operations for January ...	18
Events of 1913	1
Miltonia vexillaria	3
New Hybrids	30
Calanthe kewensis	31
Spathoglottis edinensis	30
Obituary	5
Sir Trevor Lawrence, Bart. ...	8
Dr. A. R. Wallace, F.R.S. ...	5
Orchid Notes and News	31
Orchid Portraits	32
Orchid Review	32
Orchids in season	31
Phalænopsis Lindenii	21
Presentation of Orchids to Kew ...	4
Societies	22
Manchester and North of England Orchid	27
Royal Horticultural	22
Spathoglottis pulchra	17

ILLUSTRATIONS.

Brassavola Digbyana	9
Brassavola Digbyana, capsule of ...	10
Brassocattleya Cliftonii magnifica ...	14
Brassocattleya Hyeæ	15
Brassocattleya Leemanniæ	13
Brassocattleya Maroniæ	12
Brassocattleya sandhaghensis ...	16
Brassocattleya Veitchii, Holford's var.	11
Brassolælia Helen	17

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The Orchid Review

VOL. XXII. JANUARY, 1914. NO. 253.

EVENTS OF 1913.

THE march of time brings us to the eve of another year, and the period of our annual survey. The past year has witnessed a number of interesting events, and among them another great Quinquennial Show at Ghent, in April, which occupied a new site, in connection with the International Exhibition, and was followed by two later Shows, at all of which Orchids were exhibited in splendid condition, affording evidence of the growing popularity of these beautiful plants on the Continent as well as in England. The great Spring Show of the R.H.S., so long associated with the Temple, and suspended last year on account of the Royal International Horticultural Exhibition, was held at the Royal Hospital, Chelsea, at the end of May, and so far as Orchids were concerned almost rivalled its predecessor in brilliance, while the Summer Show, held six weeks later at Holland House, also produced a good display. The fortnightly meetings of the R.H.S. and of the Manchester Orchid Society have also been very successful.

CERTIFICATED ORCHIDS.

The number of Certificates given by the R.H.S. Orchid Committee is about the same as last year, though varying in detail, chiefly owing to the higher standard now exacted for the First-class Certificate. These numbered thirty-six last year against fifty-four in 1912, while the Awards of Merit were 105, showing a scarcely appreciable increase. The Cultural Commendations, always a test of excellence, were nearly twice as numerous, or thirty-three instead of eighteen. An analysis of the plants to which First-class Certificates were awarded shows eight Odontoglossums, six Cattleyas, Brassocattleya and Læliocattleya five each, Cymbidium three, Miltonia and *Odontioda* two, while Brassocatlælia, Dendrobium, Cypripedium, Miltonioda, and *Odontonia* each claimed a single one. Of these twenty-seven were hybrids and only nine species. In the case of Awards of Merit Odontoglossum again heads the list, with twenty, followed by Cattleya with seventeen, Læliocattleya fifteen,

Cypripedium twelve, and Odontioda eleven. Then come Oncidioda and Odontonia, with four and three respectively, and a list of seventeen genera with one or two each. Here again the hybrids vastly outnumber the species, the proportions being as great as 88 to 17, a fact of vast significance.

HYBRIDS.

The new hybrids of the year include so many interesting and striking things that the mention of a few of the more distinct must suffice for the present. Læliocattleya Freak is a remarkable hybrid from Cattleya citrina and Lælia purpurata. Brassocattleya The Baroness is a charming blush white, and Brassocatlælia an equally beautiful yellow novelty. Odontonia has received such fine additions as O. brugensis, McNabiana, Cybele, Farnesiana, Longowoyi, and Cholletii, the latter figured at p. 177 of our last volume, where figures of the handsome Odontoglossum Elfrida, Miltonia Sanderæ and M. Charlesworthii may also be found, while Oncidioda Bella, Miltonioda Cooperi, and several promising Odontiodas are noteworthy additions.

SPECIES.

Apart from hybrids the novelties of the year were not numerous, but include the brilliant Habenaria Rœbelenii, a near ally of H. militaris, Maxillaria Fletcheri, a fine Peruvian species, Cycnoches Cooperi and C. Forgetii, two interesting Peruvian novelties, Oncidium bidentatum, from Ecuador, and several other interesting botanical species which have flowered in various collections.

LOSSES DURING THE YEAR

include the following, all well-known in connection with Orchidology: Gustave H. Müller-Abeken, William Holmes, William Bull, Adolphus H. Kent, John Snow Moss, Dr. Alfred Russell Wallace, and Sir Trevor Lawrence, the Obituary notices of the two latter appearing in our present issue. We also regret to hear of the death of Mr. Pandeli Ralli on December 28th.

THE COMING YEAR

opens with plenty of promise, and we may confidently anticipate a series of successful meetings and exhibitions, for which the materials were never more plentiful, while the coming registration of hybrids by the Royal Horticultural Society, of which particulars were given in our last issue, will enable the ever-increasing number of these plants to be dealt with on a more satisfactory basis than was formerly possible. Another event awaited with great interest is the opening of the Reichenbachian Herbarium, which has been sealed to the world for a period of twenty-five years by the eccentric Professor. We will not anticipate further, but will conclude by wishing our readers A HAPPY NEW YEAR, and increased success with their collections.

MILTONIA VEXILLARIA.

THIS extremely beautiful Orchid is not always to be found growing to perfection in amateur's collections, and considering its remarkable floriferousness and free-growing qualities, it seems a pity that its culture is not more extended. Those who frequent the fortnightly shows at the Royal Horticultural Hall, or who may glance at the superb plant of M. vexillaria var. Snowflake figured at vol. xx. page 209 of the *Orchid Review*, cannot fail to be greatly impressed by the wonderful decorative effect produced, and the following outline of its culture may be found useful.

The coolest end of the Cattleya house or warm greenhouse must be set apart for the accommodation of the species, standing each plant on an inverted pot, and leaving much space between to allow of a free circulation of air. The following average temperatures should be maintained:—

Spring: 60° to 70° Fahr.
Summer: 60° to 80° Fahr., this latter only with sun heat.
Autumn: 60° to 70° Fahr.
Winter: 53° to 60° Fahr.

It will be found best to detail the culture month by month:—

JANUARY.—During this month the plants should be in active growth, and should receive much water; they should, however, be allowed to get fairly dry between each application. These beautiful Orchids are much subject to thrip, and on the first appearance of this pest, fumigation must be resorted to.

FEBRUARY.—If the climatic conditions allow, more air and proportionately more water may now be afforded. Damping down daily is usually necessary. The plants should be growing at their best this month.

MARCH.—If the young roots are ready to push from the new growths it will be advisable to repot, and better results are obtained where this operation is performed annually. Much care is needed, and all newly-potted plants should be kept drier and shaded. I find the following compost gives the best results, a mixture of polypodium and osmunda fibres with green sphagnum moss, and a sprinkling of half-decayed oak leaves rubbed through a sieve.

APRIL.—More water can now be given, and damping between the pots must be done in the morning and again in the evening. Shading will now become necessary, and should be lowered when the sun is shining on the glass.

MAY and JUNE.—The flower-spikes will now be pushing, and a slightly drier atmosphere is necessary. More shade will be needed, and the plants will usually be found to require a dose of water daily. Any flower-spikes

entrapped within the leaves must be liberated, and weekly fumigation to check the ravages of thrip is advisable.

JULY and AUGUST.—Heavy shading is needed during this and the following month, and as the plants pass out of flower the supply of water should be decreased, allowing them to rest for as long as possible. A good dose of water once every three days will be usually sufficient. The atmosphere should, however, be kept always well charged with moisture. Any plants which were not potted in the spring should receive attention. They must not be potted too hard, and will benefit from a spray overhead daily.

SEPTEMBER.—It is still not too late to re-pot any plants if necessary. Be careful not to place them in receptacles that are too large, or serious harm will result. Shading can now be dispensed with, and more air given.

OCTOBER to DECEMBER.—Place the plants on a shelf near the roof glass, where they can receive the maximum amount of light. Syringing can be done once daily when the weather is propitious, but water the plants with care. If overwatered they lose their leaves and young roots and take long to recover. If the tips of the leaves turn black it is a sure sign that too much water is being afforded.

M. Bleuana is a beautiful hybrid raised by crossing M. vexillaria and M. Roezlii, and there are now secondary hybrids raised by recrossing M. Bleuana with both the original parents. They will succeed under the same treatment as M. vexillaria, but like a rather warmer corner of the house, a character inherited from the heat-loving M. Roezlii.

C. ALWYN HARRISON.

PRESENTATION OF ORCHIDS TO KEW.—The *Kew Bulletin* records that the collection of Orchids has been enriched by the presentation of a valuable collection of healthy, well-grown plants by Mrs. Sheppee, of Holly Spring, Bracknell. These Orchids represent a portion of the collection formed by the late Colonel Sheppee, an Orchid enthusiast of no mean order. Upwards of 260 plants have been received, many of them being handsome specimens, and among the rarer species there are some which were not represented at Kew. Of the more interesting of these may be mentioned Dendrobium sanguinolentum var. album, Zygosepalum rostratum and Arundina bambusæfolia. The collection includes twenty-six species of Dendrobium and a number of the best hybrids. The specimens of Angræcum eburneum, A. Leonis, A. sesquipedale, Peristeria elata, and Vanda Sanderiana, and a fine healthy specimen of Cyrtopodium punctatum are particularly worthy of notice. Other genera represented in the collection by one or more species are Masdevallia, Miltonia, Lycaste, Thunia, Zygopetalum, Anguloa, Catasetum, Cœlogyne, Cattleya, Lælia, Phalænopsis, and Trichopilia.

OBITUARY.

DR. ALFRED RUSSELL WALLACE, O.M., F.R.S.—A great naturalist of the Victorian era, whose name is indissolubly linked with that of Charles Darwin in the discovery of the great law of natural selection, passed away at his residence, Broadstone, near Bournemouth, on Friday, November 7th, in his 91st year. On July 1st, 1858, a joint paper by Charles Darwin and Alfred Russell Wallace was read at a meeting of the Linnean Society, entitled, "On the tendency of Species to form Varieties, and on the Perpetuation of Varieties and Species by Natural Means of Selection." That paper has revolutionised every branch of Natural History. The circumstances were briefly as follows. In the previous February, Wallace wrote, from Ternate, a long letter to Darwin explaining views which had suddenly occurred to him when lying ill with intermittent fever, and which he summarised in a final phrase as follows:—

> There is a tendency in nature to the continued progression of certain classes of *varieties* further and further from the original type—a progression to which there appears no reason to assign any definite limits. . . This progression, by minute steps, in various directions, but always checked and balanced by the necessary conditions, subject to which alone existence can be preserved, may, it is believed, be followed out so as to agree with all the phenomena presented by organised beings, their extinction and succession in past ages, and all the extraordinary modifications of form, instinct, and habits which they exhibit.

This letter came as a "bolt from the blue," for Darwin had long been preparing a work on the origin of species, as the result of observations made during the voyage of the "Beagle." This was known to Sir Charles Lyell and Dr. Hooker, and Darwin was now urged to publish an extract. To this he acceded, remarking, "I have more especially been induced to do this, as Mr. Wallace, who is now studying the natural history of the Malayan Archipelago, has arrived at almost exactly the same conclusions that I have on the origin of species." To both these great naturalists the idea came as the result of observations on the character and distribution of wild life within the tropics.

Wallace spent four years, from 1848 to 1852, in South America, in company with the naturalist Bates, and on his return he published an entertaining *Narrative of Travels on the Amazon and Rio Negro*. The work contains little about Orchids, though the following extract shows how they came under his observant eye. The locality was Rio Jeronymo, on the Rio Negro, and he remarks:—

> In a little patch of open bushy campo, which occurs about a mile from the village, I was delighted to find abundance of Orchids. I had never seen so many collected in one place; it was a complete natural Orchid-house. In an hour's ramble I noticed

about thirty different species—some, minute plants scarcely larger than mosses, and one large semi-terrestrial species, which grew in clumps, eight or ten feet high. There were but few in flower, and most of them were very small, though pretty. One day, however, I was much delighted to come suddenly upon a magnificent flower: growing out of a rotten stem of a tree, just level with my eye, was a bunch of five or six blossoms, which were three inches in diameter, nearly round, and varying from a pale delicate straw-colour to a rich deep yellow on the basal portion of the labellum. How exquisitely beautiful did it appear in that wild, sandy, barren spot. A day or two afterwards I found another handsome species, the flowers of which, unlike most of the family, were of very short duration, opening in the morning and lasting but a single day. The sight of these determined me to try and send some to England, as from such a distant and unexplored locality there would probably be many new species. I accordingly began bringing a few home every day, and packing them in empty farinha-baskets, placing them under a rough stage, with some plantain-leaves to defend them from the heat of the sun, till we should be ready to embark. I was rather doubtful of the result, as they could not arrive in England before the winter, which might be injurious; but on my next voyage I looked forward to bringing a large collection of these beautiful and interesting plants, as they would then arrive in a good season of the year.

The subsequent history of these plants was tragic, for the ship by which Wallace returned was burned at sea, with his entire natural history collections, and the author reached England after spending several days in an open boat, which narrowly escaped being swamped during a storm.

The "next voyage" was not to South America, but to the Malay Archipelago, from 1854 to 1862, and his eight years' travels there are described in his *Malay Archipelago*, a work in two volumes published in 1869. Here again we find a few references to Orchids. When staying in Sarawak he visited a level, forest-covered swamp, and remarks:—

During my first walk . . . I . . . noticed some very handsome Orchids in flower, of the genus Cœlogyne, a group which I afterwards found very abundant, and characteristic of the district.

In speaking of Borneo generally he observes:—

The interesting group of Orchids is very abundant, but, as is generally the case, nine-tenths of the species have small and inconspicuous flowers. Among the exceptions are the fine Cœlogynes, whose large clusters of yellow flowers ornament the gloomiest forests, and that most extraordinary plant, Vanda Lowii, which last is particularly abundant near some hot springs at the foot of the Peninjauh Mountain. It grows on the lower branches of trees, and its strange pendant flower-spikes often hang down, so as to almost touch the ground. These are generally six or eight feet long, bearing large and handsome flowers three inches across, and varying in colour from orange to red, with deep purple-red spots. I measured one spike, which reached the extraordinary length of nine feet eight inches, and bore thirty-six flowers spirally arranged upon a slender thread-like stalk. Specimens grown in our English hot-house have produced flower-spikes of equal length, and with a much larger number of blossoms.

Wallace's writings include entertaining volumes on *Tropical Nature* and

Island Life. From the latter we extract the following concerning the distribution of Orchids and their abundance in the Tropics:—

> Their usually minute and abundant seeds would be as easily carried as the spores of ferns, and their frequent epiphytic habit affords them an endless variety of stations on which to vegetate, and at the same time removes them in a great measure from the competition of other plants. When, therefore, the climate is sufficiently moist and equable, and there is a luxuriant forest vegetation, we may expect to find Orchids plentiful on such tropical islands as possess an abundance of insects adapted to fertilise them, and which are not too far removed from other lands or continents from which their seeds might be conveyed.

Many of Wallace's writings lie outside our sphere, but we must add our tribute of recognition to his share in establishing the great principle of evolution by means of natural selection. In conclusion, we may briefly refer to the Darwin-Wallace celebration held on July 1st, 1908, at which the surviving author gave an interesting account of the circumstances which led them independently to the same discovery (*O.R.*, xvi. pp. 225-228)—a discovery which throws a flood of light on the marvellous adaptations seen among Orchids.

In an Obituary notice in *Nature* it is remarked that Wallace as an old man was impatient of the recent work which centres round Mendelism and mutations. To this Prof. E. B. Poulton very well replies that with regard to Mendelism he felt, as many far younger men feel, that it is both interesting and important, but that from the first it has been put in a wrong light, and erroneously used as a weapon of attack upon other subjects to which it is not in any way antagonistic. And respecting mutation Wallace himself wrote: "Mutation as a theory is obsolutely nothing new—only the assertion that new species originate always in sports—for which the evidence adduced is the most meagre and inconclusive of any ever set forth with such pretentious claims!" He was a firm believer in natural selection as the motive cause of evolution, and once remarked that Darwinism actually *does explain* whole fields of phenomena that Mutationists do not attempt to deal with or even to approach. His death severs the last link with the great evolutionary writers of the mid-nineteenth century—the men who transformed the thought of the world—but his memory is immortal.

SIR TREVOR LAWRENCE, BART., K.C.V.O., V.M.H.—It is with the deepest regret that we have to record the death, on Tuesday, December 23rd last, of Sir James John Trevor Lawrence, Bart., of Burford Lodge, Dorking, a week before his 82nd birthday. He was born on December 30th, 1831, and was the only surviving son of the first Baronet, Sir William Lawrence, F.R.S., Sergeant-Surgeon to Queen Victoria. He was educated at Winchester, and studied medicine at St. Bartholomew's Hospital, afterwards serving from 1853 to 1863 in the Indian Medical Service, which

covered the period of the Mutiny. He was a member of Parliament from 1875 to 1892, first for Mid-Surrey and afterwards for Reigate.

Sir Trevor, who had long been a member of the Council, was elected President of the Royal Horticultural Society in February, 1885, on the retirement of Lord Aberdare, and ably presided over the deliberations of the Orchid Conference in the following May. He piloted the Society through some of its stormiest days, and had the satisfaction of seeing it grow until its fellowship reached over 13,000. Sir Trevor, to whom the fellows owes a debt of gratitude, retired from the Presidency in March last, when advancing years and enfeebled health were telling upon him. He was succeeded by Field Marshal the Right. Hon. Lord Grenfell.

Always a profound lover of gardens and gardening, Sir Trevor was specially a lover of Orchids, a taste inherited from his mother, Mrs. Lawrence, of Ealing Park, who was one of the most successful Orchid growers of her day. Indeed Sir Trevor may be said to have grown up among Orchids. He possessed an intimate knowledge of their characteristics and culture, and his collection was one of the finest in existence, comprising, it is estimated, some three thousand species, varieties, and hybrids. Several accounts of it have been given in our pages, and it may be added that his portrait was given at page 49 of our nineteenth volume, and that the previous volume was dedicated to him.

Several noteworthy Orchids have been named after Sir Trevor, including Cypripedium Lawrenceanum—dedicated to him by Reichenbach as early as 1878—Cattleya Lawrenceana, Mormodes Lawrenceanum, and the remarkable genus Trevoria, figured at page 297 of our eighteenth volume, where its history may be found. His memory will also be preserved by the Lawrence Medal, instituted in his honour, and by a fine painting which hangs in the Council Chamber of the Royal Horticultural Hall.

Sir Trevor leaves a widow, three sons, and one daughter, to whom we tender our deepest sympathy. The funeral took place at St. Michael's, Mickleham, on Saturday, December 27th, among those present being Lady Lawrence, Sir William Lawrence, Bart., and his wife, and other members of the family, Sir Jeremiah Colman, Bart., Lt.-Col. Sir David Prain, Sir Albert K. Rollitt, Prof. W. Bateson, and many others. By special request no floral offerings were sent, and the only emblem on the coffin was a tasteful cross of Calanthes, Epiphyllums, and white Lapageria made by Lady Lawrence. A Memorial Service was held at Holy Trinity Church, Kensington Gore, on the same day, when the Council of the Royal Horticultural Society was represented by Baron Bruno Schröder, Sir George L. Holford, Sir Harry J. Veitch, Sir Daniel Morris, Messrs. W. A. Bilney, E. A. Bowles, H. B. May, Arthur W. Sutton, and the Rev. W. Wilks, Secretary, with many other horticultural friends.

BRASSAVOLA DIGBYANA AND ITS HYBRIDS.

THE subject of the present illustration is one of the most remarkable Orchids in cultivation, and its most striking characteristic once invoked the question, "Why does the lip ravel out into a massive fringe,

FIG. 1. BRASSAVOLA DIGBYANA (see p. 15). *Photo by C. P. Raffill.*

branched and interlacing, nearly an inch wide?" The answer is not yet forthcoming, but in all probability has some direct connection with the fertilising insect, about which nothing is known. The possibilities of

such a lip naturally appealed to the hybridist, and the attempt to combine it with the brilliant colour of some of the popular Cattleyas and allies has originated a race of hybrids with fringed lips of the most diversified character, which is destined to be still further developed in the future.

Brassavola Digbyana was originally sent from British Honduras by Mrs. McDonald, wife of the Governor of that Colony, to Edward St.

Fig. 2. CAPSULE OF BRASSAVOLA DIGBYANA (see p. 12).

Vincent Digby, Esq., with whom it flowered at Minterne, Devonshire, in July, 1846, when it was described and figured by Lindley (*Bot. Reg.*, xxxii. t. 53). Lindley had not seen the pollen masses, but thought that it must belong to the same genus as Brassavola glauca, and remarked: "The singular fringe that borders the lip is quite analagous to what occurs in B. cucullata and others, only it is here extremely extended, so as to give the flower quite a shaggy appearance." He also added: "The neck of the

ovary, which is cuniculate to a remarkable degree, is fully four inches long." Three years later it was figured in the *Botanical Magazine* (t. 4474), from a plant which flowered at Kew, when Sir William Hooker alluded to it as the most remarkable of all the Brassavolas. The eight pollinia are well shown on the plate.

In 1881 the species was transferred to Lælia by Bentham, who

Fig. 3. BRASSOCATTLEYA VEITCHII HOLFORD'S VAR. (see p. 15).

remarked that Brassavola glauca and B. Digbyana had not the characteristic perianth of Brassavola, and might be better placed in Lælia (*Journ. Linn. Soc.*, xviii. p. 314). The change was accepted for a time, but ultimately had to be abandoned, and it is probable that Bentham overlooked the long beaked ovary, a character not found in Lælia.

The species is apparently rather local. According to Sir Daniel

Morris, who visited British Honduras and sent a flower to Kew for determination in July, 1882, it is very common on logwood trees in swamps in the north, but rare elsewhere (*Brit. Honduras*, p. 69), and he alludes to it as possibly the handsomest Orchid in the Colony. These logwood swamps are said by Miller to be full of a tall cutting grass, about twelve feet high, which makes them very unpleasant, though there are said to be many Orchids, the beauty of which takes off some of the monotony of working through them (*Proc. R. Geogr. Soc.*, ix. p. 422).

Brassavola Digbyana long remained rare in cultivation, but Mr. John

Fig. 4. BRASSOCATTLEYA MARONIÆ (see p. 15).

Day, who painted it twice (*Orch. Draw.*, v. t. 8; xxxiv. t. 57), records: "I had a great many plants in 1879 and 1880, but sold them all in 1881, before they bloomed." The first painting represents the typical form, with pale green sepals and petals, and was from a plant obtained at Mr. Charles Warner's Sale in April, 1870; the second was painted at Mr. W. Bull's in 1883, and has the sepals and petals tinged and margined with purple, as in the one we now figure. There are two or three other pecularities about the plant besides the deeply fringed lip. The long beak of the ovary, already mentioned, is well shown in figure 2 (page 10), from a capsule produced in the collection of R. G. Thwaites, Esq.,

Streatham Hill. This beak is about three inches long, three times as long as the swollen basal part which bears the seeds, while the pedicel itself is very short. The shrivelled segments at the base of the column can also be seen. A third character is that the whole plant is covered with a peculiar glaucous bloom, which probably has some protective nature, and, lastly, it may be mentioned that the lip is invariably twisted slightly to one side, which gives the flowers a quaint appearance when several of them are seen together.

Striking as the flower is in shape, it is rather deficient in colour, and it was not until the possibilities of the plant as a parent were recognised that

Fig. 5. BRASSOCATTLEYA LEEMANNIÆ (see p. 16).

it was much sought after. The first hybrid from it was raised by Messrs. James Veitch & Sons, Cattleya Mossiæ being the seed parent. It flowered in 1889, and received a First-class Certificate from the R.H.S. under the name of Lælia Digbyano-Mossiæ. It now bears the name of Brassocattleya Veitchii. The plant made quite a sensation, but it was not until eight years later that a second hybrid followed, also raised by Messrs. Veitch, from C. Trianæ and B. Digbyana, which received a First-class Certificate from the R.H.S. in April, 1897, under the name of Læliocattleya Digbyano-Trianæ. It is now called Brassocattleya Sedenii. A third hybrid flowered before the year was out in the collection of T. W.

Thornton, Esq., Brockhall, Weedon, having been raised from C. Gaskelliana and B. Digbyana, and was described as Læliocattleya Thorntoni, afterwards becoming Brassocattleya Thorntoni. From that period there was a steady accession to the ranks of Brassavola Digbyana hybrids, which now include combinations with practically every species of the Cattleya labiata group, and with a few of its hybrids, with several of the long-bulbed Cattleyas, and a remarkable hybrid with C. citrina, known as B.-c. Alexanderi; also numerous hybrids with Lælia and Læliocattleya,

Fig. 6. BRASSOCATTLEYA CLIFTONII VAR. MAGNIFICA (see p. 16).

known as Brassolælia and Brassocatlælia respectively. In fact the series is a very extensive one, and is growing rapidly.

There are two points about these hybrids in which improvement is desirable, and, unfortunately, they are quite antagonistic, namely, to increase the brilliancy of colour and the depth of the lip's fringe. The former is being gradually accomplished by recrossing with richly-coloured Cattleyas and Læliocattleyas, and the latter might be secured by recrossing with the Brassavola, though we do not remember a record of such a cross.

The fact is B. Digbyana is weak in both the shape and colour of the sepals and petals, and there is an idea about that such crosses would be of little decorative value. We would suggest, however, that the cross should be tried between the white B.-c. Veitchii var. Queen Alexandra and a light form of B. Digbyana, which might give a very interesting result.

The series of figures now given illustrate some of the points mentioned in this article. Fig. 1 (p. 9) represents a very fine form of Brassavola Digbyana, having a strong tinge of purple in the sepals and petals, and is

Fig. 7. BRASSOCATTLEYA HYEÆ (see p. 16).

reproduced from an excellent photograph by Mr. C. P. Raffill. The remarkable character of the lip, with the crest and markings in the throat, are well shown. Fig. 2 (p. 10) represents a capsule of the same about nine months old, and practically full grown. Its characters have already been pointed out. Fig. 3 (p. 11) is a fine white form of Brassocattleya Veitchii, known as Holford's var., which received a First-class Certificate from the R.H.S. in November, 1911. Cattleya Mossiæ Reineckeana was the other parent, and the albinism has been retained. Fig. 4 (p. 12) is B.-c. Maroniæ, a very handsome hybrid from Cattleya Warscewiczii, which was

raised by M. Ch. Maron, Brunoy, France, and flowered for the first time in 1901. Fig. 5 (p. 13) is B.-c. Leemanniæ, raised from C. Dowiana aurea by M. Ch. Maron, Brunoy. It flowered for the first time in 1902, and in some of its best forms shows a large amount of yellow in the flowers, though usually much suffused with rose. Fig. 6 (p. 14) represents B.-c. Cliftonii var. magnifica, the first secondary hybrid from B.-c. Veitchii. This was raised by Messrs. Charlesworth & Co., Haywards Heath, and received a First-class Certificate from the R.H.S. in March, 1909. Cattleya Trianæ Uplands var. was the other parent.

The next two figures show the effect of crossing with the other section

Fig. 8. BRASSOCATTLEYA SANDHAGHENSIS.

of Cattleya having long, two-leaved pseudobulbs and a three-lobed lip. Fig. 7 (p. 15) represents B.-c. Hyeæ, a fine hybrid from Cattleya Harrisoniana, which was raised by M. Jules Hye de Crom, Ghent, and flowered in 1905. Fig. 8 (p. 16) is B.-c. sandhaghensis, a hybrid from C. Schilleriana, which was raised by M. Gustav H. Müller, Huis Sandhaghe, Den Haag, Holland, and flowered in 1909. It has dark sepals and petals and a strongly three-lobed lip. Lastly, fig. 9 (p. 17) represents Brassolælia Helen, a hybrid from Lælia tenebrosa, which was raised by M. Ch. Maron, Brunoy, France, and flowered for the first time in May, 1902. The sepals and petals are reddish brown, and there are some radiating purple lines on the lip.

In conclusion, we should be glad to know if anyone has intercrossed Sophronitis grandiflora or any of its hybrids with Brassavola Digbyana. If this could be done some remarkable colour breaks might result, but the relative lengths of the pollen tubes probably impose a difficulty.

SPATHOGLOTTIS PULCHRA.—The appearance of a hybrid from Spathoglottis pulchra, as recorded at page 30, raises a question as to the origin of the species, and Professor Balfour informs us that it was obtained

Fig. 9. BRASSOLÆLIA HELEN (see p. 16).

from Messrs. Sander & Sons. There is a New Guinea species bearing this name, which was described by Schlechter, in 1905 (*Nachtr. Fl. Deutsch. Sudsee*, p. 147), the author remarking that it was the most beautiful Spathoglottis known to him, though he does not mention the colour of the flowers or the affinity. From the characters given, however, it appears to belong to the S. plicata group. It was collected in the mountains of Neu Pommern, formerly known as New Britain, an island of the Bismarck Archipelago, north-west of New Guinea. Whether the two are identical must be left until specimens are available for comparison. R.A.R.

CALENDAR OF OPERATIONS FOR JANUARY.

By T. W. BRISCOE, Late Foreman of Messrs. Veitch's Hybridising Department.

WITH the commencement of a new year, the Orchid grower's thoughts naturally turn towards the longer, brighter days that are so essential to the health of plant life generally and Orchids in particular. He will begin to think about repotting, and it is advisable to procure a good stock of osmunda and other fibres, which may be prepared during the present month. For cutting up these fibres in quantity there is no better implement than an old chaff-cutting machine with one knife removed. Such a machine can sometimes be purchased fairly cheap at the Michaelmas sales in agricultural districts, or in towns where motors have replaced that beautiful creature, the horse. In the case of amateurs who only cultivate a few plants, a pair of ordinary sheep shears will answer the purpose. Pots and pans should be washed ready for the busy season, and a quantity of broken flower pots may also be treated in a similar way to be eventually used for drainage.

WEAKLY PLANTS.—I have found from time to time that a plant in a poor condition can be restored to its former vigour by adding a few partly decayed oak or beech leaves to the usual compost, and if any reader feels disposed to adopt this method now is a suitable time to collect them, afterwards storing in a dry but well-ventilated shed. All the sticks and rubbish should be removed, and then the leaves should be rubbed through a half-inch mesh sieve as required, and when the dust is taken out a nice light flaky material is left, which is enjoyed by certain Orchids that do not seem to get sufficient nourishment from the ordinary compost generally recommended for Orchids. Miltonias, Disas, Odontoglossums, &c., should certainly be tried in this mixture, if the previous results are not satisfactory.

BLINDS.—The present is a good time to overhaul the blinds to ascertain which will need renewing, for with the advent of March the cool-growing Orchids will need some protection from the sun during the middle of the day. Where fresh blinds are wanted no time ought to be lost in despatching the order, because there is often a rush on the sundriesman or nurseryman in the early spring, which occasionally makes it difficult for him to execute the demand at once. Both canvas and wooden lath blinds are used, some growers selecting one and some the other. Personally, I prefer the former for Dendrobiums, Cattleyas, and their allies, but for seedlings, Cypripediums, and Odontoglossums I fancy the latter are better. In the Midlands and North it may be advantageous to run down the blinds at night when the weather is cold and frosty, and if such a course is decided upon then those made of wooden laths should be chosen, for it is impossible to remove

the canvas blinds until a thaw sets in without doing considerable damage

ROUTINE WORK.—By the end of the month the washing down of the houses should be finished. Every plant ought to be looked over for insect pests, and new labels should be written where it is necessary. This is an important item, or should be, in every collection. Seedlings are usually grown under numbers, and the parentage and other details are carefully recorded in a stock-book kept especially for that purpose. It is a good plan to have two books, one for every-day use and the other may be stored in the iron safe or where it is secure against loss. At one time the common deal label was largely used, but it has been superseded by the white celluloid kind which is obtainable in various sizes.

SPECIAL VARIETIES.—In every establishment there will be found at least a few of what might be termed extra special plants, such as albinos, rare hybrids, or choice species, which, if left among the general collection, are apt to be overlooked and deteriorate in consequence. This can be overcome by arranging them upon inverted flower-pots, or placing them in a separate division where they will be always under the eye of the grower. Some suspend such plants from the roof, but this is not recommended, except for Cattleya Dowiana aurea, which enjoys a certain amount of strong light, as there is a possibility of them suffering from drought through the summer months.

TEMPERATURES.—Each division or house ought to contain a thermometer, and the following table should be adhered to as far as possible, although much will depend upon the weather. If it is cold and frosty it will be much better for the inmates to allow the temperature to fall five degrees or so below the prescribed minimum than to drive the fires hard, the latter causing that dry, stuffy atmosphere in which no plant will thrive.

East Indian or Warm house: 65°-70° Fahr.
Cattleya or Intermeuiate house: 60°-65° Fahr.
Odontoglossum or Cool house: 55°-60° Fahr.
Seedling house: 70° Fahr.

The figures quoted refer to the day temperatures, and the maximum must always be recorded at midday, while at night about five degrees lower all round should be the rule.

ATMOSPHERIC MOISTURE.—A buoyant and moist atmosphere must be created in each house, by damping the stages, floors, &c., once or twice each day, but in this respect we should be guided by the amount of fire-heat required to maintain the temperatures at the proper figure. The locality also makes a difference, for in low-lying districts scarcely any damping down is needed during the winter months, while in exposed positions drier conditions usually prevail.

VENTILATION is an important factor in Orchid culture, and the ventilators ought to be opened an inch or so on all favourable occasions, but always on the leeward side of the house.

CALANTHES.—Several of these beautiful winter-flowering Orchids, such as C. vestita rubro-oculata, and luteo-oculata, the pure white C. Harrisii, and C. Veitchii, will now be past their best, and after the scapes are removed they will need a decided rest till growth begins in the spring. Some allow them to remain in their pots during this period of repose, but if stage room is scarce they may be shaken out of the old soil, and, after cutting away a portion of the roots, place them in boxes with some silver sand around the base. A cool structure is necessary, and the atmosphere must be tolerably dry. An ideal spot is a shelf in a vinery, or where the temperature is not likely to fall below 50° Fahr. The late flowering C. Regnieri may be kept moist at the root till the flowering season is over, when it can be treated in the same way as the others. This is a splendid Calanthe, and should be chosen by growers near large manufacturing towns, where fog occasionally plays such havoc among the earlier-flowering kinds.

ZYGOPETALUM MACKAYI, as the scapes are removed, may be repotted in a mixture of loam and osmunda fibre. During the hot summer months this species should be accommodated in the cool division, but when the spikes are showing, a few degrees more warmth is beneficial. All the *Zygopetalums* belonging to this group are vigorous and strong rooting, and ought never to be permitted to get into a starved condition.

CYPRIPEDIUMS.—These useful winter-flowering subjects will require attention towards the end of the month, and any that are in a pot-bound state must be repotted and divided into several pieces if the variety is a choice one. Where it is not desired to increase the stock they may be placed in a receptacle two sizes larger, without much disturbance at the base. Cypripediums, especially those of the insigne type, are of easy culture, and make ideal plants for the amateur. Where good fibrous loam is procurable it should form the chief ingredient in the rooting material, the other constituents being good quality peat or osmunda fibre, with a sprinkling of finely-crushed crocks. The pots must be well drained, and the plants kept moist at the root throughout the year, although for a few weeks after being disturbed a little more care is necessary. If a house or division is set apart for these Cypripediums the temperature should fluctuate between 55° and 60° Fahr., and the atmosphere kept fairly moist. C. Fairrieanum, so far as I can gather, does not respond any too readily to the conditions prevailing in our Orchid houses, and we seldom see such fine examples as when it was re-introduced a few years ago. It has been tried in various positions, but with little success, and it would be interesting if growers will give their experience with this charming little Cypripede.

SEEDLING CYPRIPEDIUMS can be potted on directly they fill their pots with roots, irrespective of season, and if they are kept free from thrip the flowering stage will soon be reached. Seed may also be sown around old plants which do not need repotting this season, and those with a clean surface, and having the soil below the rim, ought to be selected for the purpose. Careful watering is essential, and if the pots are placed in a temperature of 70° Fahr. germination will generally take effect in about two months, provided the seed is fertile. This statement, however, must not be taken too literally, for I have known seedlings to appear twelve months or more after sowing the seed.

CŒLOGYNE CRISTATA will now begin to show signs of flowering, and may be given a more liberal supply of water, but none must accumulate in the young growth or the scapes will probably decay. Soon after the spikes are removed a fresh batch of roots will be seen at the base of each shoot, when any repotting or top-dressing can be taken in hand. C. cristata and its varieties rather resent much disturbance at the root, and it is about a couple of years before they recover sufficiently to produce a good crop of flowers, so the best method is to overhaul a specimen or two (according to the quantity grown) each year. Pans from eight to sixteen inches in diameter prove the most useful receptacles, and the ordinary compost of osmunda, peat, and sphagnum moss should be employed.

DENDROBIUMS.—Some of the early kinds will be swelling at the nodes, and if given a little more warmth they will soon be in flower. Hard forcing is not suggested, and water should only be applied in sufficient quantity to prevent the pseudobulbs from shrivelling. The majority can still be kept cool, and fairly dry at the root.

CATTLEYAS.—Many of the winter-flowering Cattleyas and Læliocattleyas, especially hybrids from C. labiata and C. Bowringiana, possess a somewhat thick sheath, and when the scapes are removed care should be taken to make a clean cut, and if the weather is dull and foggy a little powdered charcoal or sulphur may be sprinkled over the wound, which will in most cases prevent decay.

PHALÆNOPSIS LINDENII.—An interesting Philippine Phalænopsis was exhibited by Messrs. Stuart Low & Co., Jarvisbrook, at the R.H.S. meeting held on December 2nd last, and proves to be P. Lindenii, Loher, described in 1895 (*Journ. des. Orch.*, vi. p. 103). M. Loher described it as somewhat like P. Schilleriana in the leaves and P. rosea in the flowers, which would suggest natural hybridity, except that he found no other species with it, and that the flowers do not agree with P. Veitchii, which has such a parentage. Messrs. Low believe that their plant came with P. Aphrodite. Its history has been given in our pages (xv. p. 296).—R.A.R.

SOCIETIES.

ROYAL HORTICULTURAL.

THE last show of the year was held at the Royal Horticultural Hall, Vincent Square, Westminster, on December 2nd, and produced a fine display of Orchids, the awards consisting of six medals, one First-class Certificate, six Awards of Merit, and one Cultural Commendation.

Orchid Committee present: J. Gurney Fowler, Esq. (in the Chair), Messrs. J. O'Brien (hon. sec.), Gurney Wilson, de Barri Crawshay, W. Bolton, S. W. Flory, W. H. White, H. G. Alexander, J. E. Shill, W. P. Bound, W. H. Hatcher, J. Cypher, W. Cobb, A. McBean, T. Armstrong, F. J. Hanbury, R. G. Thwaites, R. A. Rolfe, Stuart Low, Arthur Dye, and Sir Harry J. Veitch.

Baron Bruno Schröder, The Dell, Englefield Green (gr. Mr. Shill), sent a splendidly-grown plant of Odontoglossum crispum Leonard Perfect, bearing a spike of fifteen very fine flowers, the chaste Cattleya O'Brieniana alba, and a fine Brassocattleya Veitchii Queen Alexandra.

Lt.-Col. Sir George L. Holford, K.C.V.O., Westonbirt (gr. Mr. Alexander), sent a very fine example of the richly-coloured Læliocattleya Nella, and Cypripedium Artemis aureum (nitens × Fairrieanum), a pretty yellow flower with a white apex to the dorsal sepal.

Crofton Black, Esq., Upminster, sent a very fine form of Odontoglossum grande, bearing two sturdy spikes of very richly-coloured flowers.

M. Henri Graire, Amiens, France, sent Odontoglossum Saturne var. flavescens (apterum × spectabile), having light yellow flowers spotted with red-brown, O. Jupiter (armainvillierense × apterum), closely blotched all over with cinnamon-brown on a whitish ground, and O. Neptune var. splendens, bearing three handsomely blotched flowers.

W. Hewitt, Esq., Newlands, Frenchay, Bristol, showed Cypripedium Frenchay (bellatulum × Lawrebel), a handsome hybrid most resembling the latter.

Sir Trevor Lawrence, Bart., K.C.V.O., Burford (gr. Mr. White), sent a good plant of the West African Listrostachys Monteiræ, bearing two racemes of white flowers.

W. R. Lee, Esq., Plumpton Hall, Heywood (gr. Mr. Branch), sent Cypripedium Arachne, a striking yellow and brown hybrid, approaching C. Buchanianum, with a white apex to the dorsal sepal, and a few other good things.

Francis Wellesley, Esq., Westfield, Woking (gr. Mr. Hopkins), sent Cypripedium Delhi (Earl of Tankerville × insigne Harefield Hall var.), a very fine form, bearing six flowers, somewhat resembling the latter.

Messrs. Cypher & Sons, Cheltenham, staged a good group of well-grown Cypripediums, in which C. Tityus and var. superbum, C. Thalia, C. Niobe, and others were excellent, also examples of Masdevallia tovarensis, Estradæ, and bockingensis (Silver Flora Medal).

Messrs. Flory & Black, Orchid Nursery, Slough, staged a fine group, including a good example of Læliocattleya Nella, some excellent Odontoglossums, including a fine seedling of O. Lambeauianum, Cypripedium Cassius (Haywoodii × niveum), a fine white flower with lines of purple dots, C. Floryi (Niobe × Countess of Carnarvon), a richly-coloured flower, forms of C. Idina, Madame Jules Hye, Cymbidium Tracyanum, and others (Silver Flora Medal).

Messrs. Stuart Low & Co., Jarvisbrook, staged a fine group, including some good Dendrobium Phalænopsis and the chaste var. album, Oncidium bicallosum, Houlletia Brocklehurstiana, Vanda cœrulea, Masdevallia Laucheana, some good Cattleyas and Læliocattleyas, Phalænopsis Schilleriana and the pretty little P. Lindenii (see page 21), &c. (Silver Flora Medal).

Messrs. Sander & Sons, St. Albans, staged a fine group, including many good Cattleyas and Læliocattleyas, Zygopetalum intermedium, Cymbidium giganteum, Saccolabium calcaratum, and other interesting species, with a number of good Cypripediums (Silver Flora Medal).

Mr. H. Dixon, Spencer Park Nursery, Wandsworth Common, staged a pretty little group, including Odontioda Cupid, a few Cattleyas, Læliocattleyas, and Odontoglossums, with a good specimen of Cymbidium Tracyanum (Silver Banksian Medal).

Messrs. Hassall & Co. Southgate, staged a fine group of Cypripediums and Odontoglossums, some good forms of Cattleya Sylvia, Maggie Raphael, and others, the richly-coloured Lycaste Tunstillii, Læliocattleya Moira, rubens, and other good things (Silver Banksian Medal).

Messrs. Charlesworth & Co., Haywards Heath, staged a few choice things, including Læliocattleya St. Gothard and Thyone, a beautiful example of Aërides Lawrenceæ, Odontoglossum crispum Madonna, good forms of O. Ceres, Oncidium varicosum Rogersii, Sophronitis grandiflora, and others.

Mr. E. V. Low, Vale Bridge, Haywards Heath, sent a fine example of Cymbidium I'Ansonii.

Messrs. J. & A. McBean, Cooksbridge, sent good examples of Cymbidium Doris and Schlegelii, a fine form of Zygopetalum intermedium, with a few good Cypripediums, Læliocattleyas, and Odontoglossums.

FIRST-CLASS CERTIFICATE.

CATTLEYA MAGGIE RAPHAEL DELL VAR. (Trianæ alba × Dowiana aurea).—A very beautiful variety, having pure white sepals and petals, and

a rich crimson lip with yellow veining. Exhibited by Baron Bruno Schröder.

AWARDS OF MERIT.

CYPRIPEDIUM GOLIATH (insigne Harefield Hall var. × Amy Moore).—A large and handsome form, most like the former in general character, with very dark blotches on the dorsal sepal. Exhibited by W. R. Lee, Esq.

CYPRIPEDIUM STRELSA (insigne Harefield Hall var. × Alcibiades).—A finely shaped form, having a broad white dorsal sepal, with dotted purple lines above the green base. Exhibited by W. R. Lee, Esq.

LÆLIOCATTLEYA AUTODOIN (L. autumnalis × C. Octave Doin).—A handsome form, approaching the Lælia parent in general character, and bearing a good spike of bright rose-purple flowers with a paler throat to the lip. Exhibited by Messrs. J. and A. McBean.

LÆLIOCATTLEYA MRS. TEMPLE VAR. DREADNOUGHT (L.-c. Greenwoodii × C. Mossiæ).—A charming light rose-purple flower, with a white throat to the lip and purple mottling in front. Exhibited by C. J. Phillips, Esq., The Glebe, Sevenoaks.

ODONTIODA LATONA GOODSON'S VAR. (Odontoglossum spectabile × Odontioda Bradshawiæ).—A beautiful form, bearing a spike of sixteen bright scarlet flowers, with a few white markings on the sepals and petals. Exhibited by H. S. Goodson, Esq., Fairlawn, Putney (gr. Mr. Day).

ODONTOGLOSSUM SATURNE VAR. VIOLACEUM (apterum × spectabile).—A handsome form, having the flowers tinged with violet and well blotched with red-brown. Exhibited by M. Henri Graire.

CULTURAL COMMENDATION.

LÆLIOCATTLEYA GOLDEN BEAUTY.—To Mr. H. G. Alexander, Orchid grower to Lt.-Col. Sir G. L. Holford, for a very fine plant bearing two spikes, the best having fifteen deep golden yellow flowers, with the front lobe and disc of the lip ruby crimson.

There was no Show on December 16th, but the Committee sat upstairs to adjudicate upon the Orchids submitted for Certificate.

Orchid Committee present: J. Gurney Fowler, Esq. (in the Chair), Messrs. J. O'Brien (hon. sec.), Gurney Wilson, W. Bolton, A. McBean, W. H. Hatcher, S. W. Flory, H. G. Alexander, T. Armstrong, A. Dye, de B. Crawshay, Stuart Low, R. A. Rolfe, J. Charlesworth, R. G. Thwaites, W. Cobb, W. H. White, F. J. Hanbury, J. E. Shill, and Sir Harry J. Veitch.

Baron Bruno Schröder, The Dell, Englefield Green (gr. Mr. Shill), showed the handsomely-blotched Odontoglossum armainvillierense Ebor.

Lt.-Col. Sir George L. Holford, Westonbirt (gr. Mr. H. G. Alexander),

showed Cypripedium Swallowtail (M. de Curte × Fairrieanum), a fine light-coloured flower of the Thalia type, and one or two others.

Sir Trevor Lawrence, Bart., K.C.V.O., Burford (gr. Mr. White), showed a pan of four beautifully-grown examples of the brilliant Habenaria Roebelenii, with orange-scarlet flowers.

Earl Stanhope, Chevening Park, Sevenoaks, sent four beautiful Calanthes, obtained by recrossing C. Veitchii with forms of C. vestita, the parents also being shown.

E. R. Ashton, Esq., Broadlands Park, Tunbridge Wells, sent Odontioda Royal Gem Broadlands var., prettily blotched with red on a yellow ground.

F. J. Hanbury, Esq., Brockhurst, East Grinstead (gr. Mr. Matthews), showed Cypripedium Hanburyanum, a hybrid approaching C. Leeanum giganteum and from which C. Maudiæ, it is believed to have been derived, but no trace of the second parent could be found.

Messrs. Armstrong & Brown, Tunbridge Wells, showed Cypripedium Sandhurst (concolor × Fairrieanum), most like the former in habit, and the colour light yellow, much dotted and tinged with red.

Messrs. Charlesworth & Co., Haywards Heath, showed Læliocattleya Britannia var. Melanie (L.-c. Canhamiana alba × C. Warscewiczii Frau Melanie Beyrodt), having white sepals and petals and a light purple lip, also fine examples of Odontoglossum eximium augustum, with a spike of eighteen flowers, and O. eximium xanthotes, a beautiful white variety with clear yellow spots.

Messrs. J. & A. McBean, Cooksbridge, sent fine examples of Lælia anceps Schrœderæ, Sophrocattleya Saxa, Odontoglossum Doris, Odontioda Euterpe McBean's var., and others.

FIRST-CLASS CERTIFICATE.

CATTLEYA PERCIVALIANA ALBA LADY HOLFORD.—A beautiful clear white variety, of fine shape and substance, with a deep orange-coloured throat to the lip. The plant bore two spikes with two flowers each. Exhibited by Lt.-Col. Sir George L. Holford.

AWARDS OF MERIT.

CYPRIPEDIUM BOURTONENSE (insigne Harefield Hall var. × Blanche Moore).—A large greenish flower of good shape, and the upper half of the dorsal sepal white with many small spots below. Exhibited by G. F. Moore, Esq., Bourton-on-the-Water, Glos. (gr. Mr. Page).

CYPRIPEDIUM NITENS-LEEANUM SMARAGDINUM (Sallieri Hyeanum × Leeanum giganteum).—A beautiful emerald green flower, with the upper half of the dorsal sepal white. Exhibited by F. J. Hanbury, Esq.

ODONTOGLOSSUM CLEOPATRA (Carmania × Vuylstekei).—A fine form, having red-purple sepals and petals margined and tipped with yellow, and a

broad white lip, with purple basal markings. Exhibited by de Barri Crawshay, Esq., Rosefield, Sevenoaks (gr. Mr. Stables).

ODONTONIA LONGOWOYI (O. Uroskinneri × M. Schrœderiana).—A distinct and striking hybrid, having oblong-lanceolate, chocolate-purple sepals and petals, and a broad white lip, with purple base and a few lighter spots in front. Exhibited by Messrs. Charlesworth & Co.

MANCHESTER & NORTH OF ENGLAND ORCHID.

At the meeting held at the Coal Exchange, Manchester, on Thursday, November 27th, 1913, the members of Committee present were: Rev. J. Crombleholme (in the Chair), Messrs. J. Cypher, A. G. Ellwood, J. Evans, A. Hanmer, W. H. Hatcher, J. Howes, D. McLeod, C. Parker, F. K. Sander, W. Shackleton, W. Thompson, H. Thorp, A. Warburton, Z. A. Ward, G. Weatherby, and H. Arthur (Secretary).

A Large Silver-gilt Medal was awarded to R. Ashworth, Esq., Newchurch (gr. Mr. Gilden), for an excellent mixed group, a Cultural Certificate and Bronze Medal being awarded to the gardener for a very fine Odontoglossum crispum Orbis.

Large Silver Medals were awarded to A. Warburton, Esq., Haslingden (gr. Mr. Dalgleish), and Wm. Thompson, Esq., Walton Grange (gr. Mr. Howes), for fine miscellaneous groups.

Silver Medals were awarded to H. H. Bolton, Esq., Newchurch (gr. Mr. Eastwood), and Messrs. Cypher & Sons, Cheltenham, for groups of well-grown Cypripediums.

Interesting exhibits were staged by Z. A. Ward, Esq., Northenden (gr. Mr. Weatherby); the Hon. Lady Neeld, Grittleton, Wilts (gr. Mr. Pitts); O. O. Wrigley, Esq., Bury (gr. Mr. Rogers); Messrs. Charlesworth & Co., Haywards Heath; Messrs. A. J. Keeling & Sons, Bradford, and Mr. W. Shackleton, Great Horton, Bradford.

FIRST-CLASS CERTIFICATES.

Cypripedium mirum (Euryades New Hall Hey var. × Alcibiades), a gigantic flower, having a square dorsal sepal, spotted with purple (a Gold Medal being also awarded); C. Queen Alexandra Walton Grange var., a very large well-coloured flower; C. Hermes, with a well spotted round dorsal sepal; C. San Actæus var. Our Queen, a well-shaped green flower, devoid of spots, and Odontioda Queen Mary var. luminosa, a bright, round flower, with very distinct markings, all from Wm. Thompson, Esq.

AWARDS OF MERIT.

Cypripedium Draco Grittleton var., from the Hon. Lady Neeld.
Cypripedium Lathamianum Thompsonii, from Wm. Thompson, Esq.
Odontoglossum amabile Ruby Gem, from Z. A. Ward, Esq.
Læliocattleya Thyone, from R. Ashworth, Esq.

At the meeting held on December 18th, 1913, the members of Committee present were :—Rev. J. Crombleholme (in the Chair), Messrs. R. Ashworth, J. Cypher, A. G. Ellwood, J. Evans, A. Hanmer, J. Howes, J. Lupton, D. McLeod, W. J. Morgan, C. Parker, W. Shackleton, Wm. Thompson, H. Thorp, Z. A. Ward, G. Weatherby, and H. Arthur (Secretary).

A Gold Medal was awarded to R. Ashworth, Esq., Newchurch (gr. Mr. Gilden), for a magnificent miscellaneous group.

A Gold Medal was also given to Mr. Rogers, gardener to O. O. Wrigley, Esq., Bridge Hall, Bury, for the splendid culture of a group of over fifty fine Cypripediums, forming a magnificent display.

A Silver-gilt Medal was awarded to A. Warburton, Esq., Haslingden (gr. Mr. Dalgleish), for a group composed largely of Cypripediums, with a few Odontoglossums.

Six Large Silver Medals were awarded for very fine groups, that from Wm. Thompson, Esq., Walton Grange (gr. Mr. Howes), containing no fewer than fifteen plants which gained Certificates, while that from H. J. Bromielow, Esq., Rann Lea (gr. Mr. Morgan), included the rare Cypripedium Charlesworthii Bromielowianum, and some promising unnamed seedlings. The other groups were from Col. J. Rutherford, M.P., Blackburn (gr. Mr. Lupton)—including a fine specimen of Cypripedium Leeanum giganteum, which gained a Cultural Certificate and Bronze Medal for the gardener—Z. A. Ward, Esq., Northenden (gr. Mr. Weatherby) ; Messrs. Sander & Sons, St. Albans, and Messrs. Cypher & Sons, Cheltenham.

A Silver Medal was awarded to the Hon. Robert James, St. Nicholas, Yorks (gr. Mr. Benstead), for a fine group of Calanthes, with a few Cypripediums, a Silver Medal being also awarded to the gardener for culture.

Silver Medals were also awarded to A. E. Penny, Esq., Preston (gr. Mr. Sumner), and J. Butterworth, Esq., Burnley (gr. Mr. Wilson), for good miscellaneous groups.

A Bronze Medal was awarded to H. Arthur, Esq., Blackburn, for a group of Cypripediums.

Interesting exhibits were staged by W. R. Lee, Esq., Plumpton Hall (gr. Mr. Branch) ; Messrs. A. J. Keeling & Sons, Bradford ; Messrs. Stuart Low & Co., Enfield ; Messrs. Charlesworth & Co., Haywards Heath, and Mr. W. Shackleton, Great Horton, Bradford.

FIRST-CLASS CERTIFICATES.

Odontoglossum fulgidum (parentage unknown, but showing the influence of O. Harryanum), a large dark bronze flower, with cream margin round the sepals and petals ; O. The Egyptian, a finely-shaped flower, the sepals and petals very dark chocolate, margined with white, and the lip broad,

finely marked with crimson brown, and white in front; O. purpuratum, a massive flower of good shape, with light purple ground, heavily blotched with deep purple, and margined with white, the lip very broad and showing traces of O. Harryanum; O. rubens, a grand flower, with broad lip, and the sepals and petals dull reddish, shaded with purple and margined with white; O. Our Queen (crispum Hyeanum × eximium), a flower of perfect shape, ground colour white, and the sepals and petals heavily blotched; O. amabile var. Illuminator, a large flower, with pure white ground, and finely marked with bright purple; O. crispum xanthotes, Walton Grange var., a fine round flower, with the sepals and lip blotched with yellow and the petals spotted; Odontioda Bradshawiæ Sander's var., the finest form yet seen, the flower being as large as a good Odontoglossum crispum and very bright in colour; and Cypripedium insigne Snow Queen, the nearest approach to a white insigne yet seen, the lip and petals of pale primrose colour, and the dorsal sepal pure white with slight greenish yellow base, and devoid of any spots whatever, all from Wm. Thompson, Esq., Walton Grange, Stone.

Odontoglossum amabile Ashworth's var., a good round flower of brilliant colour, and Vanda cœrulea Ashlands var., a richly-coloured form, from R. Ashworth, Esq.

Cypripedium Nirvina (Alcibiades × aureum virginale), a magnificent evenly-marked flower, and Odontoglossum Arachne (Vuylstekei × eximium), a noble, blotched flower, from W. R. Lee, Esq.

Odontoglossum eximium The King, a flower of almost solid colour, from Messrs. Charlesworth & Co.

AWARDS OF MERIT.

Odontoglossum Lambeauianum Hesperus, O. crispum graphicum, Cypripedium Hera Mostyn, C. Curlew, C. Draco Walton Grange var., and C. Alice Mary, all from Wm. Thompson, Esq.

Cypripedium Lady Evelyn James (Lavertonianum × aureum virginale), C. Palladium (aureum virginale × villosum auriferum), and Calanthe Veitchii St. Nicholas var., all from the Hon. Robert James.

Odontoglossum eximium Zenith and Cypripedium Estella (Hindeanum × concolor), from R. Ashworth, Esq.

Cypripedium Lady Evelyn James (Lavertonianum × aureum virginale), and C. Hecla, from W. R. Lee, Esq.

Odontoglossum Meteor, from J. Butterworth, Esq., Burnley.

Cypripedium unnamed (Alcibiades × Leeanum), from A. Warburton, Esq., Haslingden.

Cypripedium Actæus var. Ethel (Leeanum Clinkaberryanum × insigne Harefield Hall var., from Messrs. Cypher & Sons.

Vanda cœrulea var. Fairy Queen, from Messrs. Stuart Low & Co.

THE AMATEUR'S COLLECTION.

By C. ALWYN HARRISON.

THE last few years has led to an increasing interest being taken by amateurs in the cultivation of Orchids, and many are now beginning to form collections and adapting existing houses for their requirements. I am convinced that many are deterred from attempting Orchid-growing under mistaken ideas that these plants need great heat and specially constructed houses; but endless pleasure and interest can be got from a mixed assortment housed in the ordinary greenhouse.

Where it is intended to utilise a structure already in existence, little alterations are necessary, beyond erecting a staging about six inches above the one provided, placing slates to retain humidity on the lower one, and to have, if possible, the bottom ventilators situated on a level with the hot water pipes. Obviously Orchids cannot be grown in a house not provided with brick sides nor heated by the hot water pipe system.

The earth under the staging should be left in a natural condition. I am not in favour of a concrete path, and wires should be run along the roof of the house, from which many plants can be suspended. In arranging the plants leave plenty of space between each, so as to allow of a free circulation of air to pass around each, and stand the plants on inverted pots or saucers, according to their height.

As regards the selection of plants, care should be taken only to procure species and hybrids which are free in flowering and of easy culture, and to attach the utmost importance to procuring such in the best of health and vigour. Unhealthy or weakly plants, although cheaper, will never be found satisfactory, and the grower possessing such may well give up the culture of Orchids in disgust.

For commencing a collection I would advise the following to be procured: Cattleyas, Cymbidiums, Cypripediums, Dendrobiums, Epidendrum vitellinum, Lælias, Læliocattleyas, Odontiodas, with Cœlogyne cristata, Lycaste Skinneri, Oncidiums, Renanthera Imschootiana, and Vanda cœrulea. For the varieties of each the intending cultivator would do well to visit a nursery and personally select plants in flower, as a better opinion of each can be formed than by mere description.

Having secured a selection of strong healthy plants, care must be taken to give them necessary cultural requirements, which will ensure their increasing in size and vigour year by year, and affording a wealth of bloom as the season for each one arrives. During this month the following average temperatures should be maintained :—

Day, 55° to 60° Fahr. Night, 50° to 55° Fahr.

Orchids delight in a free circulation of air at all times, and hence anything approaching stuffiness in the atmosphere must be avoided. It will generally be found possible to open the bottom ventilators daily, even if only for an hour or so, and this will effectively prevent a close, stagnant atmosphere, which is often the sole cause of failure in some collections. No shading will be needed yet, and unless very mild and sunny weather prevails, damping down, *i.e.*, syringing the staging, paths and pots, will only be needed once daily.

Rain water must be used for direct application to the plants, and during this month those in active growth should be given a dose whenever the surface moss appears to require it, by assuming a whitish colour, but all those Orchids which are at rest will need only a dose every nine or ten days. Should the temperature fall at any time below 50° Fahr., no water must be given to the plants until the thermometer has again risen to the proper height. At this season the winter-flowering Cypripediums are making a grand show, and number amongst the most useful Orchids for an amateur's house.

SUGGESTED ADDITION.

DENDROBIUM NOBILE VIRGINALE.—This is an extremely pretty and floriferous variety of this well-known Orchid, and can be easily procured owing to its having been raised true from seed in great number, and a well-bloomed plant presents a striking sight during the spring months. The flowers are pure white without any trace of purple, of good size, and they last several weeks in perfection. It is a rapid grower, small propagated plants quickly producing bulbs of flowering size and strength. During the growing season a moist warm position must be selected, but when at rest and during the formation of the flower buds a very light and airy spot is essential to success.

NEW HYBRIDS.

SPATHOGLOTTIS EDINENSIS.—A very interesting hybrid, raised in the Royal Botanic Gardens, Edinburgh, by Mr. A. J. Munday, gardener in charge of the Orchids, from S. Fortunei ♀ and S. pulchra ♂, which surely holds the record for precocity, for Prof. I. B. Balfour remarks that the seeds were sown in January, 1913, and the first flowers expanded in the following November. The seeds were found to germinate in a few days. The flowers are most like those of S. Fortunei in general character, the sepals and petals slightly suffused and veined with pale purple on a pale yellow ground, and the lip with some crimson markings on the crest and an obcordate, purple front lobe. A plant has been presented to Kew. The history of S. pulchra is given on page 17.

CALANTHE KEWENSIS.—A brilliant little hybrid raised at Kew from C. Veitchii crossed with C. rubens, and now in bloom there. The flowers are bright rose, much darker than in the pollen parent, and the lip broadly ovate, and somewhat four-lobed. The pseudobulbs are slightly constricted near the apex. It should develop into a good thing.

ORCHIDS IN SEASON.

A SPIKE of Vanda cœrulea Rogersii, a distinct, nearly white variety, with flowers of moderate size and an unusually long spur, is sent from the collection of O. O. Wrigley, Esq., Bridge Hall, Bury, with a few Cypripediums, the best having much of the characters of C. insigne Harefield Hall var., but the petals very broad, horizontal, and reticulated with brown. C. Lathamianum is given as the other parent, but the influence of C. Spicerianum is not apparent. C. Bruette (villosum × Fairrieanum) is most like the latter parent in shape, but with more of the colour of C. villosum.

Three very finely-developed flowers of the handsome Cypripedium Actæus Westfield var. are sent from the collection of Francis Wellesley, Esq., Westfield, Woking. It has received an Award of Merit from the Royal Horticultural Society.

ORCHID NOTES AND NEWS.

TWO meetings of the Royal Horticultural Society will be held at the Royal Horticultural Hall, Vincent Square, Westminster, during January, on the 13th and 27th, when the Orchid Committee will meet at the usual hour, 12 o'clock noon.

The Manchester and North of England Orchid Society will hold meetings at the Coal Exchange, Manchester, on January 15th and 29th. The Committee meets at noon, and exhibits are open to inspection of members and the public from 1 to 4 p.m.

At the Maidstone Chrysanthemum Show held at the Corn Exchange, Maidstone, on November 11th and 12th, a beautiful group of over sixty well-bloomed Orchids was exhibited by Mr. Edward Clement, The Nook, Ashford Road, Maidstone, as a non-competitive exhibit. It contained some good Cattleyas, Odontoglossums, Oncidiums, Epidendrums, Cypripediums, and other autumn-blooming kinds, and was greatly admired. Mr. Clements is an amateur who took up Orchid growing as a hobby about three years ago, with the assistance of his wife. A note by him appeared at page 8 of

our last volume, in which he gave particulars of the collection, whose origin is attributed to his casually coming across a number of the *Orchid Review*. It is pleasing to know that he has been so successful.

THE ORCHID REVIEW.—The present issue of the *Orchid Review* celebrates its twenty-first birthday, and, it will be noticed, contains the improvements foreshadowed in our preceding number. The new cover was designed by Mr. F. W. Rolfe, and this, with other alterations, we believe materially improves the appearance of the work. We invite the opinion of the readers on this matter, and shall be glad of any suggestions for improving the utility of the work. Records of interesting events, with flowers of new hybrids, and particularly photographs suitable for reproduction, will be greatly appreciated. Another way in which our readers can assist is by making the work known among their Orchid-growing friends, a service which will be reflected in the pages of the work.

ORCHID PORTRAITS.

CATTLEYA PERCIVALIANA ALBA LADY HOLFORD.—*Gard. Mag.*, 1913. p. 955, with fig.

CIRRHOPETALUM MASTERSIANUM, Rolfe.—*Bot. Mag.*, t. 8531.

CYPRIPEDIUM BOURTONENSE.—*Gard. Chron.*, 1913, ii. p. 454, fig, 158.

CYPRIPEDIUM DREADNOUGHT.—*Journ. Hort.*, 1913, ii. p. 604, with fig.

CYPRIPEDIUM MAUDIÆ (specimen).—*Gard. Mag.*, 1913, p. 979, with fiig.

LÆLIOCATTLEYA NELLA WESTONBIRT VAR.—*Gard. Chron.*, 1913, ii. p. 416, fig. 144.

LYCASTE TUNSTILII.—*Gard. Chron.*, 1913, ii. p. 415, fig. 143.

ODONTOGLOSSUM CLEOPATRA.—*Gard. Chron.*, 1913, ii. p. 456, fig. 159.

PHALÆNOPSIS LUEDDEMANNIANA.—*Horticulture*, 1913, p. 559, with fig.

ANSWERS TO CORRESPONDENTS.

[*Orchids are named and questions answered here as far as possible. Correspondents are requested to give the native country or parentage of plants sent. An* ADDRESSED *postcard must be sent if a reply by post is desired (abroad, reply postcards should be used). Subjects of special interest will be dealt with in the body of the work*]

WE have to thank several esteemed correspondents for records of hybrids, which shall be duly incorporated in the lists

F.J.H.—It may be that this is a case of parthenogenesis, and as there is neither marbling in the leaves nor striping in the flower we think that in some mysterious way the influence of C. Maudiæ must have miscarried. Such cases are accumulating.

M.O.S.—The capitalisation of specific names need not be difficult. Descriptive adjectival names and names derived from places take a small letter, as crispum, waltonense, but personal names are written with a capital, as Veitchii, Cassiope.

Received with thanks.—G.R.F., F.W.T. A.C., F.W.M., E.F.C., P.W., F.H.M., F.W., E.R.

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THE ORCHID REVIEW

Edited by R. ALLEN ROLFE, A.L.S.

CONTENTS:

	PAGE
Amateur's Collection	59
Anglo-American Exhibition	64
Answers to Correspondents	64
Brassavola Digbyana and its hybrids	38
Calendar of Operations for February	43
Cypripedium Fairrieanum : a warning	36
Cypripediums, winter blooming ...	40
Gardeners' Magazine	48
Hybrid Orchid Register ...	62, 63
Lawrence Medal	62
Murder of a Plant Collector	37
New Hybrids	58
Odontoglossums from Walton Grange	61
Oncidium Engelii	47
Orchid breeding	37
Orchid Notes and News	62
Orchid Portraits	64
Orchid Review	61
Orchids at Leyswood, Groombridge...	48
Orchids in season	61
Orchis, a new British	39
Our Note Book	33
Paphinia cristata	49
Ralli, Mr. Pandeli	61
R.H.S. Council Report	62
Societies	49
American Exhibition	57
Manchester and North of England Orchid	55
Royal Horticultural	49

ILLUSTRATIONS.

Cypripedium Leeanum var. Gratrixiæ	41
Paphinia cristata	49

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The Orchid Review

VOL. XXII. FEBRUARY, 1914. NO. 254.

OUR NOTE BOOK.

THE Press reporter—more power to him—has dropped in at another of our meetings. "Surely in all London on a January day," he remarks, "there is no such place as the Royal Horticultural Hall. If such shows were held in London once in a generation the Hall would be filled with eager thousands, but because there are fifty in a year they are almost unnoticed." [We hasten to assure him that we have not got to weekly meetings yet.—ED.]. "One stepped in to-day out of the cold, grey, friendless streets into a glow of colour, such as no artist could paint—into a hall where men are quiet and friendly—where social distinctions are forgotten. . . . And at a time when London streets are empty of colour, when flowers are rare, there is nothing in this show at the Horticultural Hall more triumphant in pageantry than the Orchids. On the naked stems they hang like gorgeous butterflies, spotted and barred like the wild beasts of the jungle, amber and tawny, flaming and dusky, like the skies above the lagoon. They have no lovely perfume, these spoilt darlings of the hothouse, but for barbaric energy of shape and colour they are peerless."

The occasion was the second meeting of the year; had it been a fortnight earlier he might have alluded to the wild beasts of the jungle in quite a different sense, for the *Gardeners' Magazine* remarks: "In the annexe usually devoted to Orchids, the new stout wire arrangement for the protection of new Orchids caused some little amusement, because it seemed to have strayed from the Zoological Gardens." *The Garden* also observes: "To the great astonishment and disappointment of visitors, the special Orchids which had been judged for awards were placed behind an unsightly wire caging"; while the *Journal of Horticulture* has the following comment: "A metal screen, or grill, as it was called, was placed in front of the more valuable of the Orchids, the sequel to thieving of pollen some months ago. It is a most disagreeable innovation to visitors, and particularly to reporters, who tried in vain to decipher the inscription on

the labels attached to the award cards. More light seems to be necessary, or, better still, legible handwriting."

This pollen thieving began at a meeting held in March last, when some miscreant abstracted the pollen of an Odontioda and that of Brassocattleya Cliftonii magnifica, leaving behind only a little trace of cotton wool to tell the story. The sequel to this outrage was that a rope has since been affixed some three feet in front of the plants on the committee table, with an attendant in charge, and a notice was put up that the flowers might on no account be touched by anyone during the continuance of the show. The scene then shifted to the Ghent Quinquennial Exhibition, where the spike of Miltonia Charlesworthii was annexed on the second day. Next came the Holland House Show, at which some choice Orchids were placed in a small tent, for inspection by the Orchid Committee, and left unguarded, the result being that the pollen of a choice form of Miltonioda Harwoodii vanished. A few weeks later the pollen of a valuable Odontoglossum was annexed at an ordinary meeting.

The next information was that Messrs. McBean had lost a considerable amount of pollen from their establishment at Cooksbridge. Several hundred flowers were attacked during the course of a few days, and although a careful watch was kept, and all the doors securely fastened, yet the pollen continued to disappear. The matter was becoming serious, and it was decided to guard the plants by close vigilance. It was not long, the *Orchid World* says, before numerous mice appeared on the scene, and quickly climbed to the tops of the plants in order to secure the pollen. Not content with securing all they could obtain from the open flowers, they next visited the largest buds—we can only admire the sublime patience of that vigilant detective—and by breaking through the segments were able to extract the pollen. But the villians appear to have come once too often, for it is reported that since the capture and due punishment of the mice no further loss of pollen has been experienced.

Another interesting incident is reported to us by the Rev. J. Crombleholme, Chairman of the Manchester Orchid Society. He writes: "At a meeting of the Society, held on October 16th, whilst the Committee was sitting, a common fly alighted heavily on the Minute Book. On its back it carried a fine piece of Orchid pollen. I drew the attention of our Secretary (Mr. Arthur) to it, and we tried to catch the thief, but we had no more success than the R.H.S. in their attempt.—It escaped."

These small fry seem to have quite entered into the spirit of the thing,

and if the grill and the attendant prove inadequate there will be nothing else for it but a tight-fitting glass case for the certificated plants.

To return to the R.H.S. meetings. The year opened auspiciously with seven medal groups—only one fewer than that which moved the representative of the daily press to such enthusiasm—besides several Certificated Orchids behind the grill. (By the way, at the next meeting some of them had escaped into the open Hall, pollen thieves or no). The Registration Form of the Hybrid Orchid Register was also available, and was requisitioned for several novelties, so that the new scheme promises to be soon in working order.

One of the difficulties that lies ahead is the increasing number of hybrids of unrecorded parentage, unless, as seems probable, the majority can be fitted into their places as forms of existing hybrids. Already they are being used as parents, and the offspring of one such plant received a certificate at the last R.H.S. meeting, so that in addition to the difficulty of identifying hybrids of unknown parentage, there will also be that of identifying their parents, a task not always within the powers of the most astute observer.

But these supposed difficulties may prove to be largely imaginery, and may vanish as we approach them. In any case they will not arrest the march of improvement, and the attempt to keep a record of the steps by which such progress is made will be invaluable in the future. The attempt to secure such a record should secure the loyal co-operation of all hybridists.

ARACHNANTHE LOWII.—There has been much speculation as to the significance of the orange-coloured flowers at the base of the spike of this remarkable Orchid, but the matter has never, so far as we know, been cleared up, so that it may be interesting to mention a record by the late Mr. J. C. Spyers. Speaking of a plant then in flower at Burford, he observed (*Gard. Chron.*, 1880, ii. p. 406): "A remarkable fact about this splendid Vanda is that the one or more yellow flowers at the base of the many-flowered spike emit a very powerful odour, while none of the chocolate and white are anything but slightly scented. The scent is peculiar but not disagreeable." The plant at this period was known under the name of Vanda Lowii, and under this name Wallace's account of it will be found at page 6. Mr. John Day figured it in August, 1864 (*Orch. Draw.*, viii. t. 25), from flowers brought to him by Mr. S. Rucker, of Wandsworth, and again in August, 1879 (xxv. t. 35), when he had two plants in bloom in his own collection. On this occasion he remarked: "The scape has no stiffness whatever, and is perfectly pendulous, like a wet string."

CYPRIPEDIUM FAIRRIEANUM: A WARNING.

I SEE in the January issue of the *Orchid Review* (page 20) that the plants of Cypripedium Fairrieanum are beginning to lose their vigour, as did the first importation. It is not, I trust, a general complaint as yet, but it is one I have been quite expecting, as I feel sure it is a plant that resents too moist and even airs and temperature. Its habitat is no longer a secret (see *O.R.*, xvii. p. 373), and it grows at a considerable elevation, where the nights must be cool when there is a clear sky. Five years ago I had three small, freshly-imported bits sent out to me at Nice, where I find C. insigne and its varieties are quite happy, grown at the foot of an olive tree with some sheltering shrubs to screen the plants from summer suns and winter frosts. These three plants have now so thriven and increased that it is evident they enjoy the *same conditions* as C. insigne, with this small difference that I find they like a warmer position *in summer*, in fact they like more sun heat. When I came out last October I found the first blooms of C. Fairrieanum just open. To-day, on the 20th of January, the latest flowers are just fading, having lasted more than three months, having endured lately, without apparent injury, three nights below freezing and a snow-storm that for a short time threatened to fill their pouches with snow. Certainly their vigour has increased year by year, and they have undergone temperatures up to 88° and 90° in the shade on occasions, and in winter seem all the better for the cold nights so long as the day temperature rises during the day to 50° as a maximum. This winter is the coldest they have undergone, but I now quite expect they require a very different atmosphere to the moist and still cool air of Intermediate Orchid houses in England. I therefore hope all those whose plants are seeming to dwindle and lose vigour will not fail to give them a much airier and colder treatment in winter, and a sunnier and more open-air treatment in summer.

It is hard to say what some Orchids will *not* endure! I saw good masses of Lælia anceps that had been growing for four years on an olive tree in a sheltered garden here. The morning I saw them there had been three degrees of frost, which had not spoilt the numerous spikes of flower that hung down in much beauty! The only difference I could see was that the flowers were rather smaller than those under glass and grown in heat. The plants and the new bulbs were thoroughly vigorous and healthy. I shall be interested to see if they suffer from this late cold weather, and propose to try how they will answer with me, though my garden is not so near the sea or quite so sheltered.

Many of the modern hybrid Cypripediums are now so round and solid in the dorsal sepal, and so stiff and "overfed" in general outline, that I

cherish the C. Fairrieanum influence that gives a lighter and more elegant bloom.

I wish to offer my congratulations on the coming of age of the *Orchid Review* and its new dress. I do hope you will sometimes protest against the stiffness, and I could almost say vulgarity, of many hybrids, which seem to me to gain Certificates for any reason save that of beauty. It is high time a protest should be made by someone!

Nice. EDWARD H. WOODALL.

[Mr. Woodall furnishes a very interesting confirmation of what he wrote five years ago (*O.R.*, xvii. p. 372), at which time we could not help wondering whether his success would be maintained over a series of years. Mr. Woodall is an old Orchid grower, and we have not yet forgotten a magnificent spike of Vanda cœrulea that he once sent to us from Scarborough, and the plant which gained a First-class Certificate from the R.H.S. over eighteen years ago, which was illustrated in our pages (vol. iii. p. 337), and the method of treatment described. We wonder if the plant has been tried at Nice.—ED.]

MURDER OF A PLANT COLLECTOR.—The *Florists' Exchange* publishes a report that Dr. C. B. Robinson, a botanist in the Science Section of the Department of the Interior, Philippine Islands, has been put to death by the natives of Amboyna Island, in the Malay Archipelago. Dr. Robinson, who is said to be an Englishman, has done considerable work on the Flora of the Philippines, on which he has written several important papers. He had previously been connected with the New York Botanical Garden. His mission to Amboyna was undertaken with the object of studying the plants described by the Dutch botanist, Rumphius, in his *Herbarium Amboinense*, published as long ago as 1750, including a good many Orchids, which Dr. Robinson hoped to identify on the spot.

ORCHID BREEDING.—A curious result has been obtained by Mr. W. C. Swanborough in the hybrid described on page 58 as Læliocattleya Swanboroughii. The ancestry may be be thus stated: Læliocattleya Dominiana (L. purpurata × C. Dowiana) × L.-c. Andromeda (L. flava × C. Dowiana). Here we have "two primary hybrids mated together" containing what has been termed a "double dose" of a character which it is desired to perpetuate, and it has been predicted that "the desired result should be reached on the average in one seedling out of every sixteen raised" (see *O.R.*, xxi. p. 77). We do not know if Mr. Swanborough was working for a yellow Læliocattleya, but L. flava has yellow segments as well as C. Dowiana, so we must hope that the batch contains at least sixteen seedlings. There is nothing like testing a theory.

BRASSAVOLA DIGBYANA AND ITS HYBRIDS.

IN your article on Brassavola Digbyana and its hybrids, in the January issue of the *Orchid Review*, you ask (at page 17) if anyone has intercrossed Sophronitis grandiflora, or any of its hybrids, with Brassavola Digbyana. At "Chessington" the endeavour has been made literally hundreds of times. Some years ago Sophronitis grandiflora was successfully fertilised with the pollen of Brassavola Digbyana, and about twenty seedlings raised from the pod; but of these only one plant has been saved, and this has not yet flowered. No other success has been obtained here, either on to Sophronitis direct or any of its hybrids. As a matter of fact the endeavour has been given up, because there are other and better ways of obtaining the desired object.

For a long time now many have realised that Sophronitis grandiflora will be to Cattleyas that which Cochlioda Nœtzliana has been to Odontoglossums, and by the introduction of Brassavola Digbyana as one of the parents I am of the opinion that some most glorious flowers will be produced, and that the height of one's ambition in this direction will be reached. Sophronitis grandiflora has the desired colour and shape, but it is small and badly wanting in the lip. Its hybrids, with few exceptions, are very fine, and the lips (when crossed with Cattleyas) are more in proportion to the rest of the flower, but they are still wanting in size. It is by using these hybrids that the easiest road to a scarlet Cattleya will be found.

Brassavola Digbyana has size, and a lip as abnormally large as the lip of Sophronitis grandiflora is abnormally small, but it is badly wanting in shape and colour. Many of the hybrids of B. Digbyana are very fine, and by carefully selecting these and mating them with selected Sophronitis hybrids we surely must obtain a scarlet Cattleya of perfect shape, and well balanced as regards the lip. By this means one overcomes the difficulty of intercrossing B. Digbyana directly with S. grandiflora or its hybrids, and even supposing that one could obtain flowers from crosses between them we should only arrive at part of the way on the journey. As an instance that perfect shape will probably be obtained, I need only refer to the yellow Brassocatlælia The Baroness, which was obtained along similar lines, the red Sophronitis grandiflora being replaced by the yellow Lælia xanthina as a grandparent.

So much for the theoretical side. As regards the practical side, the limit in patience is required to carry out this work. The proverb, "If at first you don't succeed, try, try, try again," is applicable to Sophronitis hybrids. If at the fiftieth time there is no success, one must still be prepared to try again. In some instances here the fortieth and fiftieth time has been reached, before even seed pods have been obtained, and then, with

the greatest care, sometimes only one or two seedlings have been successfully raised.

If, instead of starting with the Sophronitis hybrids ready made as parents, one decides to make them, time is lost, and it should be borne in mind that these flowers differ in colour as well as shape and size ; some are almost pure vermilion, whilst others have distinct purple in them. It is important in choosing the Cattleya which is to be used, that the Sophronitis should be selected according to the hoped-for result.

Whichever method is followed there will be many disappointments in the resulting flowers—there always are—but I feel sure that on the whole the patience and perseverance expended upon Sophronitis grandiflora as a parent on the one side, and Brassavola Digbyana as a parent on the other, will be amply rewarded.

RICHARD G. THWAITES.

Chessington, Streatham Hill.

A NEW BRITISH ORCHIS.

AT a meeting of the Linnean Society held on January 14th Mr. G. Claridge Druce, M.A., F.L.S., read a paper on a Marsh Orchis, for which he proposed the name *Orchis prætermissa* (a Latin description being given), and contrasted it with the true flesh-coloured *O. incarnata* of Linnæus, as described by C. B. Clarke in *Journ. Linn. Soc.*, xix. (1881) p. 206, showing how it differed in the shape of the flowers and in other characters from that plant. *O. prætermissa* is the crimson-flowered plant which has a wide distribution through South and Central England. A beautiful painting of it has been executed by Miss Trower from a seedling raised by Mr. B. Savile Ogle, who had collected the parent plant before 1903 on the borders of Berks and Hants. The seedlings obtained from it resembled each other and the parent in all the stages of their growth. The parent was figured as *O. incarnata* in the "Report of the Ashmolean Natural History Society of Oxfordshire" for 1904. Mr. Druce himself collected the plants in Nottinghamshire in 1878, in Oxfordshire in 1882, in Berks and in Norfolk. He has as yet been unable to see any description or figure of his plant in British or European works.

Mr. P. M. Hall and Mr. R. B. Ullman, who have studied the Orchids from round Winchester with great assiduity, came independently to the opinion that it was a distinct species (a note on it appears in the curtailed "Report of the Winchester College Nat. Hist. Society"), and found it abundantly in Hampshire. A photograph by Mr. Bedford showed that it occurred near Lewes in Sussex. Reference was made to another and as yet undescribed form from the Coast Sands of Britain, as well as to a northern plant, but these await further investigation.

WINTER-BLOOMING CYPRIPEDIUMS.

A BEAUTIFUL series of winter-blooming Cypripediums is sent from the collection of W. P. Burkinshaw, Esq., Hessle, E. Yorks, by Mr. J. T. Barker, who remarks that they have considerably over 1000 blooms open, forming a grand sight, and that they are most valuable for winter flowering. An example of the way they are grown may be seen in the annexed figure (for which we are indebted to the *Journal of Horticulture*), which represents a plant of C. Leeanum Gratrixiæ grown in the collection, and the series above mentioned includes a splendidly-developed flower from this plant. The dorsal sepal has an expanse of over three inches, and has a light apple-green base and a purple median line, the rest being white. The variety Corona has a twin-flowered scape, with a larger green area and rows of brown spots, which become purple as they extend into the white area. The petals are also broader and the dorsal sepal less reflexed. A third variety, called J. T. Barker, is most like the last, but has a smaller green area and fewer spots. C. Leeanum is very variable, and is one of the most popular kinds grown for cut bloom, the lasting quality of the flowers being well known and appreciated.

The blotched hybrids sent are very handsome, and include C. Euryades splendens and New Hall Hey var., the former having the dorsal sepal almost covered with claret-red marbling, and the petals very broad and dark, and the latter having numerous round purple spots on the dorsal sepal, and a well-coloured lip and petals. The latter has a twin-flowered scape, and is very handsome. C. Thalia giganteum and Mrs. Francis Wellesley are handsomely blotched forms, in which the C. Fairrieanum influence is well shown, while the larger and equally well blotched C. Germaine Opoix is very finely developed. C. Dowlingianum has two beautiful white flowers, copiously dotted on the petals and dorsal sepal with rosy red, the characters of C. niveum and C. Godefroyæ being very effectively combined.

C. insigne is represented by fine flowers of Harefield Hall var., Hessle var., having a broad white border to the green dorsal sepal, and rather few brown blotches, and var. Sanderæ, the latter a very fine seedling raised true by self-fertilisation. The remainder are C. Troilus, a large flower of the insigne type, C. fulshawense, with very broad well-coloured segments, C. chrysotoxum var. Victor, C. Evansianum, with well-blotched dorsal sepal and petals, larger than C. Thalia, but less blotched, C. Stevensii, of the Lathamianum type, but with a very broad band to the dorsal sepal; a seedling said to be from C. Pollettianum and insigne Harefield Hall var., but most like the latter, and a second seedling, having many purple spots

on the dorsal sepal. They form a very beautiful series. Mr. Barker, who also sends photographs showing well-grown plants of C. Dowlingianum

Fig 10. CYPRIPEDIUM LEEANUM VAR. GRATRIXIÆ.

and C. Minos Youngii, describes his method of treatment as follows:—

All the winter-flowering varieties are grown during the winter months

in a temperature of 60°, but during their season of growth a somewhat higher temperature is given. A humid atmosphere is maintained at all times, although during their flowering season the house is kept drier than at other periods. I find that a low temperature is not conducive to the production of either fine plants or flowers, though it is quite obvious that hybrids derived from species inhabiting diverse regions will show differences in their individual requirements.

Soon after flowering all plants that are in want of new rooting material are examined and potted. Top-dressing is not practised, as I firmly believe repotting is much the better and simpler process. Owing to the great difficulty of obtaining good Orchid peat—which I should have greatly preferred—I decided, as an experiment, to make up a compost without a particle of peat fibre in it. Its ingredients are as follows: Equal portions of osmunda, polypodium, and A1 fibres, sphagnum moss, and a small quantity of good loam fibre, all thoroughly mixed together. This is now my favourite compost for all the green-leaved Cypripediums, and the plant of C. Leeanum Gratrixiæ figured on page 41 was grown in it. Having used osmunda fibre and loam fibre in different quantities for these plants, I have never been satisfied with the results as compared with those obtained in the above-mentioned compost. I do not advocate the use of fibrous loam to the extent of even a fifth, and this after turning plants out of their pots from nearly all sources, and in nearly all kinds of materials. I favour a nice clean healthy porous rooting medium, in which the plants make abundance of roots, and take up an abundance of water when in full growth. When loam is used in large quantities the root action is not so free as it is in a compost like the one prescribed.

In the production of large fine flowers with long stalks, the plants must not be cut to pieces continually, but be allowed to develop, each according to its will. The drainage of the pots must have careful consideration; about a third of their depth is sufficient, and the crocks should be carefully placed in position. The plants should also be potted firmly. During hot weather the plants must be protected from the sun, and cleanliness must be observed at all times. Strong, vigorous plants should be the aim of the grower, and these, under suitable treatment, may be trusted to produce a fine crop of bloom at the proper season.

The tessellated-leaved Cypripediums should have no loam added to the compost, but this should be replaced by another part of peat fibre. In such a compost the majority of my plants of this section, both large and small, are grown.

Cypripedium niveum, concolor, bellatulum, and their hybrids are grown in a different material, which at some future time I hope to have the pleasure of describing in detail, with a photograph to illustrate their vigour.

CALENDAR OF OPERATIONS FOR FEBRUARY.

By T. W. BRISCOE, Late Foreman of Messrs. Veitch's Hybridising Department.

THE temperatures and general conditions described in the last issue will still hold good, and towards the end of the present month most of the plants will begin to show signs of renewed activity. As much work as possible should be accomplished, and so somewhat relieve the pressure later on. The repotting of the winter-flowering Cypripediums may be completed, and as root action increases so can water be given with more frequency.

ODONTOGLOSSUM CITROSMUM ought still to be kept on the dry side, until the flower spikes are seen emerging from the new growth. The back pseudobulbs may shrivel, but this need not cause any anxiety, as they soon regain their rigidity when water is again applied.

MILTONIA VEXILLARIA, with its numerous varieties and hybrids, must be placed within a reasonable distance of the roof glass in the Intermediate house, and if the leaves become sticky and adhere to each other it will be necessary to release them with the handle of a budding knife. This is most essential, or the foliage will be crippled, and thrip will find a safe lodging place.

CATTLEYAS and LÆLIOCATTLEYAS that are growing must be kept moist at the root, but for those in a dormant state drier conditions may prevail.

DENDROBIUMS.—Although not so popular as they were some years ago, the deciduous or spring-flowering section is still highly prized in many establishments. With a little management the flowering season can be prolonged, and another batch may be gradually brought along in a little extra heat before placing them in the warmest house. It is advisable not to excite the plants to any great extent by excessive watering or a very moist atmosphere. Our object should be to keep the pseudobulbs plump, and wherever possible to prevent the new growth from starting. Directly the buds are noticed more generous treatment may be given. The bulk of the Dendrobiums are generally left to take their normal course, when a good display of finely-coloured flowers will be secured in March and April.

SEEDLING DENDROBIUMS.—When the repotting of the seedling Cypripediums is completed, similar attention should be bestowed upon the Dendrobiums. The new growths will now be sufficiently advanced to form a batch of roots at their base, and when these are visible the repotting can be done. Seedlings should always be repotted, not re-surfaced or top-dressed, as is sometimes suggested. A separate receptacle must be given to each plant as early in its career as possible, and for Dendrobiums a small pan is most suitable. To this a wire handle may be attached whereby they can be suspended from the roof in the Warm house, as the

stage is usually taxed to its utmost capacity where seedlings are concerned. The rooting medium consists of fibrous peat or osmunda fibre and sphagnum moss in equal parts, and must be cut up tolerably fine. Until the roots reach the edge of the pan careful watering is needed, or the new shoot will damp off.

AERIDES, VANDAS, and ANGRÆCUMS.—Towards the end of the month these should be examined and the old sphagnum moss removed and replaced with new. Where they have lost their lower leaves, and new roots are seen bursting out of the stem, it is best to repot them. The stems are cut back at the base to within a few inches of the living roots, and then placed in a pot so that the foliage is near to the soil. To achieve this object it will probably be necessary to put the stem in the receptacle before the drainage. Each pot may be half-filled with clean potsherds, and the compost should be made up of sphagnum and peat or osmunda fibre, with a good sprinkling of crushed crocks. From now the plants may receive a more liberal supply of water, and a higher degree of humidity should be maintained by damping down the stages, floors, and walls more frequently than at any time since September. The dwarf species are usually cultivated in small pans or baskets, and suspended near the roof glass. Most of these plants are grown in the Warm house, but Aërides Vandarum and A. japonicum should be given a position at the warmest end of the Cool division.

MASDEVALLIAS.—The month of February is usually chosen for overhauling the Masdevallias, and any that have filled their receptacles with roots should be potted on. Some will only need top-dressing with fresh material, while others may be allowed to stand over till September, or even till next year. All the strong-growing kinds should be placed in ordinary flower pots, but the small species may be cultivated in pans and the Chimæra group in teak-wood baskets. The best position is at the warmest end of the Cool house, but M. tovarensis, and what is known as the Saccolabiatæ section (M. Chimæra and allies) should be removed to the Intermediate house for the winter months. The cultural requirements are much the same as for Odontoglossums, but Masdevallias ought never to suffer from dryness at the root. In regard to compost there is nothing better than peat and sphagnum moss, providing the former is of good quality, but where this is inferior osmunda or polypodium fibre may be substituted. In repotting large specimens the leafless part of the rhizomes can be cut away, when in all probability a smaller pot will be needed.

ODONTOGLOSSUMS and ODONTIODAS.—There is no difference in the cultural treatment of these two genera, and where even a small collection of these beautiful Orchids are grown a few will need repotting at intervals throughout the year. The bulk are generally done in August or September,

but all those that now require a larger pot, and are rooting from the base of the current growth, can be repotted. Good drainage is essential, and the compost is the same as that advised for Masdevallias, although I have heard of some failures where osmunda fibre has been employed as a rooting medium. For a few weeks after being disturbed little direct watering will be needed, providing the surroundings are kept moist. At one time it was the rule to admit air indiscriminately, and to let the temperature fall to a few degrees above freezing point. But now a minimum temperature of 50° Fahr. is the general custom, and ventilation given with due regard to the weather.

SEEDLING ODONTOGLOSSUMS succeed better in a slightly higher temperature, and the sprayer or Abol syringe plays an important part in the successful culture of these tiny plants. It is also important that the compost be kept in a sweet condition, and insect pests held in check. If any seed capsules are ripe a portion of the seed can be sown at once around old plants or seedlings that do not require disturbance for some months.

IMPORTED ORCHIDS.—At one time or another most growers have had to deal with newly-imported Orchids, and success depends very largely upon the condition of the plants when they arrive in this country. Directly they are received they should be carefully examined and all the decayed parts removed, when it is advisable to sponge them over and then suspend each piece from the roof at the coolest end of their respective divisions. Such subjects as Odontoglossums, Cattleyas, Dendrobiums, &c., may be sprayed over on most days until growth begins, when they can be placed in pots just large enough to comfortably take the pseudobulbs. Where large quantities are dealt with they may be put in pots at once, surrounded by broken potsherds, and as root action becomes apparent some of the potsherds can be replaced with the usual compost. With Vandas, Angræcums, &c., much the same procedure is followed, but as a rule more failures have to be recorded. Another method is to suspend them in a downward position, keeping the structure well shaded for a week or so, and dipping the plants about three times each week until they recover. All imported Orchids should be gradually inured to the light and the surroundings, and the plants should not be kept too dry. Excessive heat must also be guarded against, and careful watering will be necessary until they are well established.

RAISING SEEDLINGS.

In last month's issue our Editor, speaking of the R.H.S. awards for the year, remarked that hybrids now greatly outnumber the species, "a fact of vast significance." It is a far cry to the period when Calanthe Dominyi first made its appearance, and for a long time Orchid raising was confined to the few, but now it is quite a common pursuit, both in trade and private

collections. In all probability there are some amateurs who are also anxious to take up this interesting branch of orchidology, so perhaps a few remarks on the subject may be opportune.

SEED-SOWING.—There are two methods of sowing the seed. Such subjects as Cattleyas, Læliocattleyas, Dendrobiums, Epidendrums, and Brassavolas are sown upon prepared pots, but Cypripediums, Cymbidiums, Calanthes, Disas, Odontoglossums, and similar kinds are sown around the base of old plants. In dealing with the latter group success depends very largely upon the selection of a suitable plant. The soil should be just below the rim, and in a sweet condition, while freedom from large heads of sphagnum moss and lichenous growth is also important. Give a good watering, and when the water has drained away the seed may be sown, evenly and thinly, on the surface. Afterwards water must be given with care or the seed will be washed away, and at no time ought the plants on which the seed is sown to become really dry at the root.

ODONTOGLOSSUMS.—Seed is sown in a similar way, but existing seedlings are usually chosen in preference to older plants. This method is no doubt the best, although of course they can be and have been raised around other examples, and where any difficulty arises a few partly-decayed oak leaves added to the compost generally brings about the desired result. To ensure a batch of seedlings two or three sowings from each cross should be made, and the plants arranged in various parts of the Cool and Intermediate houses.

EPIPHYTES.—With Cattleyas and epiphytes generally a different method is adopted. A small heated case is often fitted up at the warmest end of the East Indian house, where conditions more favourable to germination can be maintained. The temperature should be 10° Fahr. or so higher than that prevailing in the house, and the atmosphere kept moist by a thin layer of cocoa-nut fibre at the bottom. A wood-work staging is placed upon inverted flower-pots, on which the seed-pans are arranged.

PREPARATION OF SEED-PANS.—Either ordinary pots or pans without side holes may be selected, and these are filled to one-half their depth with drainage. A pot 3½ inches in diameter is a suitable size, and a piece of canvas, cheese cloth, or coarse calico is stretched over a ball of sphagnum moss, or the usual compost, and then pressed tightly in the chosen receptacle. The surface should be half an inch or so below the rim, and the sides may be filled with a thin layer of chopped sphagnum moss. This is occasionally an advantage, as seedlings sometimes appear on the sphagnum and not on the canvas, while the reverse has at times to be recorded. The prepared pots are then thoroughly soaked, and after a few hours the seed may be sown.

GERMINATION.—A small pocket lens or watch-maker's glass will be found most useful to examine the progress of germination, and if the seed

is fertile the little green globules will be seen in a few weeks from the time of sowing. A portion of the seed may be sown directly it is ripe and the remainder left until the days are longer. It is essential that when once sown the seeds should never be allowed to get dry, and a light sprayer should be employed to keep them moist. It will be necessary to open the frame at intervals for ventilation, and at the same time to wipe off any accumulated moisture. If this is done every morning drip will be prevented. The treatment of the young seedlings may be left over until next month.

ONCIDIUM ENGELII.

A VERY pretty white and brown Oncidium, with trailing inflorescence, said to have been received in a batch of mixed Orchids, has been sent to Kew for determination by Messrs. Charlesworth & Co., Haywards Heath. It proves to be identical with a specimen preserved in Lindley's Herbarium, which was collected in Venezuela, in 1854-56, by Fendler (n. 1378). It was labelled Oncidium zebrinum by Lindley, and is the type of his enumeration of Fendler's Venezuelan plants (*Mem. Amer. Acad.*, viii. p. 220), although it is quite distinct from O. zebrinum, Rchb. f., whose prettily undulate white flowers, regularly barred with purple, are well shown at t. 6138 of the *Botanical Magazine*. The present plant is apparently alluded to by Reichenbach under O. zebrinum (*Gard. Chron.*, 1872, p. 1356), when he says "Fendler's variety differs in having the whole disc of the sepals violet, and a single such blotch at the base of the petals." It can hardly be O. zebrinum var. brunneum (Rchb. f. in *Gard. Chron.*, 1876, ii. p. 580), which is said to have brown bars on the sepals and petals in lieu of purple. Messrs. Charlesworth's flowers agree with Fendler's dried specimen in having the sepals uniformly brown, except for a narrow white margin and apex, while the petals are white with a small basal cluster of brown spots. The crest and basal part of the lip are light yellow, while the long attenuate, strongly recurved front lobe is suffused with light purple. Reichenbach's note would be made from the dried specimen, but the colour is not violet, either living or dried. The flowers are larger and more compactly arranged than in O. zebrinum, and quite different in detail. It, however, agrees fairly well with O. Engelii, Rchb. f., described in 1877 from a dried specimen collected at Merida by Engel (*Linnæa*, xli. p. 22). This is said to have brown flowers with pale, whitish petals and lip. O. Engelii is not included in the list of Venezuelan Orchids given by Ernst in his interesting work, *The Land of Bolivar* (ii. pp. 192-220), but I think that Messrs. Charlesworth's plant may well belong to it. It is a very distinct and attractive species.

R.A.R.

ORCHIDS AT LEYSWOOD, GROOMBRIDGE.

IN an illustrated article on the famous garden of Mrs. Temple, at Leyswood, Groomsbridge, under the care of Mr. E. Bristow, the *Journal of Horticulture remarks*:—

For many years Leyswood has been famous for its magnificent collection of Orchids, which number many thousands. Of the twenty-eight glass-houses, six are devoted to them, and these are no mean structures either, the Cattleya house itself being considered one of the finest, outside trade establishments, in the country. This house is capable of holding 13,000 fully-grown plants; it is 70ft. in length, 22ft. in width, and about 12ft. high. Well does the writer remember the difficulty of maintaining an equable temperature in this structure on a certain winter's night some years ago, when a seventy-mile nor'-easter was blowing; it was the night of the H.M.S. "Gladiator" catastrophe. Odontoglossums occupy two other houses, there being something over 2000 plants. These, of course, are grown quite cool, and the treatment they receive is evidently to their liking, for the foliage is tinged with that healthy purplish glow that signifies all is well with them. It is a wonderful sight to see the Odontoglossums in May, when the majority are flowering. Until several years ago the Odontoglossums were grown on ash-covered slate slabs on the stagings, and at that time their culture was considered most difficult; subsequently the slabs were removed and the plants stood upon the wooden stage in order to allow of more air to circulate between the plants from the bottom ventilators. The advantage of this soon became apparent, and the slabs have never since been seen in the Odontoglossum houses. Lycastes, Dendrobiums, Calanthes, and Cypripediums are grown in large quantities, and among the choicest of the last-named now in flower are Actæus langleyense, Euryades New Hall var., Mrs. Francis Wellesley, Fascinator superbum, Cupid, aureum Hyeanum, Mrs. Mostyn, Zeno King Edward VII., and several varieties of Leeanum.

THE GARDENERS' MAGAZINE.—Mr. H. W. L. Southgate, till recently Orchid sub-foreman at Kew, has been appointed Assistant Editor of the *Gardeners' Magazine* in place of Mr. C. H. Curtis, who became Editor on the retirement of Mr. George Gordon, V.M.H. From the beginning of this year the price has been reduced to one penny weekly, but the work maintains its high character as a general weekly epitome of horticulture Mr. Gordon, who retains the position of Advisory Editor, has in recent numbers given a series of articles on the history and association of the work. The Orchid figures are included in our list of Orchid Portraits.

PAPHINIA CRISTATA.

PAPHINIA cristata is a striking Orchid which was introduced nearly eighty years ago, but of late has been very rare in cultivation, and it came as a welcome surprise when it was exhibited by Messrs. Charlesworth

FIG. 11. PAPHINIA CRISTATA.

& Co., at a meeting of the R.H.S. held in August last, and gained an Award of Merit. Through the courtesy of the Editor of the *Garden* we are now able to give a portrait of it (fig. 11). It was originally described and figured by Lindley, in 1836, under the name of Maxillaria cristata (*Bot. Reg.*,

t. 1811), from a plant which flowered with Mr. Knight at the King's Road Nursery, Chelsea, in the July previous. Shortly afterwards, when Maxillaria was broken up by Lindley, a new genus, Paphinia, was established for its reception. The plant had been introduced from Trinidad, but afterwards it was found by the brothers Schomburgk on the banks of the Kamwatta River, British Guiana, and subsequently by Purdie in Venezuela. More recently it has been found in Northern Brazil, where a very beautiful albino, var. Modigliana, Rchb. f. (*Lindenia*, ii. t. 117), was also met with. The flowers of the type are lined and barred with chocolate brown on a whitish ground, and there is a tuft of white hair-like appendages at the apex of the lip, which are not shown well in the figure.

There are two other species, P. grandiflora, Rodr., a Brazilian plant which appeared in cultivation in 1883, and has much larger flowers, though generally similar in colour and markings, and P. rugosa, Rchb., f., a New Grenadan species, discovered by Gustave Wallis in 1876, and introduced to cultivation some three years later. It has bright yellow flowers, copiously dotted with red.

It may be added that Bentham reduced Paphinia to Lycaste, but the habit is distinct, while the structure of the lip and the absence of the characteristic crest form good distinguishing features.

Respecting their culture Messrs. Veitch remark: "The plants being of small size, with a pendulous inflorescence, they are best cultivated in shallow pans near the glass of the East Indian house, care being taken to shade them from too powerful direct sunlight during the summer months. The pans should be filled to about two-thirds of their depth with the usual drainage material, and the remainder with a mixture of sphagnum moss and fibrous peat, on which the plants should be placed, not inserted, so that the base of the pseudobulbs may be on a level with the rim of the pan. As the Paphinias naturally grow in a very humid atmosphere, constant attention must be given to the supply of water, and also to keeping the plants free from insect pests.

SOCIETIES.

ROYAL HORTICULTURAL.

THE opening meeting of the year was held at the Royal Horticultural Hall, Vincent Square, Westminster, on January 13th, in rather cold weather, but produced a fine display of Orchids, the awards consisting of seven medals, one First-class Certificate, and five Awards of Merit. The Registration Form of the Society's Hybrid Orchid Register also made its first appearance, and five hybrids were registered, two of which gained awards.

Orchid Committee present: J. Gurney Fowler, Esq. (in the Chair), and Messrs. J. O'Brien (hon. sec.), W. Bolton, Gurney Wilson, S. W. Flory, W. H. White, C. Cookson, A. Dye, W. P. Bound, J. E. Shill, H. G. Alexander, W. H. Hatcher, J. Cypher, C. H. Curtis, A. McBean, T. Armstrong, Stuart Low, R. A. Rolfe, J. Charlesworth, and Sir Harry J. Veitch.

Mrs. W. Raphael, Castle Hill, Englefield Green (gr. Mr. H. A. Brown), staged a remarkable group, which filled the staging of the left-hand side of the Hall. It included five large clumps of well-grown Calanthe Veitchii, the centre one with several examples of a blush-white form of C. Harrisii in front, the rest of the group consisting of well-grown specimens of Cypripedium Leeanum, C. insigne varieties, and a few others, carrying a mass of flowers. For this fine display of cultural skill a Silver Flora Medal was awarded.

Lt.-Col. Sir George L. Holford, K.C.V.O., Westonbirt (gr. Mr. H. G. Alexander), sent Cymbidium Nada (eburneum × Lowio-grandiflorum), having pretty cream-white flowers with purple spots on the lip.

Baron Bruno Schröder, The Dell, Englefield Green (gr. Mr. J. E. Shill), sent Odontioda Lambeauiana Dell var., a rich scarlet form, Cypripedium Maudiæ giganteum, a very large form, and a well-grown example of the handsome C. Moonbeam.

His Grace the Duke of Marlborough, Blenheim Palace (gr. Mr. Hunter), sent a more richly-coloured form of Cypripedium Iona with darker markings than that previously certificated.

E. H. Davidson, Esq., Orchid Dene, Twyford, sent Odontoglossum Jasper Orchid Dene var., a very fine form, and two promising seedlings flowering for the first time.

A. J. Hollington, Esq., Forty Hill, Enfield (gr. Mr. Ayling), sent a Cypripedium called Mrs. W. R. Lang, a seedling of C. Leeanum, which it much resembles.

Pantia Ralli, Esq., Ashtead Park, Epsom (gr. Mr. Farnes), sent Odontioda keighleyensis var. Firefly, a brilliantly coloured form.

Messrs. Flory & Black, Orchid Nursery, Slough, staged a very fine group, including some good forms of Læliocattleya Bola, Lucasiana, and Barbarossa, Brassolælia Helen, Odontioda Charlesworthii and Devosiana, good forms of Odontoglossum Dora and several others, Cypripedium insigne Purity, a seedling from C. insigne Sanderæ without any trace of spots, C. Pliny (Victor Hugo × Leeanum Clinkaberryanum), C. Comorin (Bassano × Euryades), with heavily blotched dorsal sepal, C. Æson giganteum, C. Snowdon, a good yellow hybrid, a well-flowered Sophronitis grandiflora, and others (Silver Flora Medal).

Messrs. Sander & Sons, St. Albans, staged a remarkable group, including

about sixty fine plants of Lælia Gouldiana, bearing over 200 spikes with from five to eight flowers each, and producing a very fine display. At the other end were two plants of Cattleya Percivaliana Albatross, white with orange throat to the lip, C. Trianæ Princess Patricia, Cymbidium Mastersianum and Winnianum, Odontoglossum igneum and Odontioda Hemptinneana (see New Hybrids, p. 58), Saccolabium bellinum, Oncidium cheirophorum, Læliocattleya Britannia, and a few others (Silver Flora Medal).

Messrs. Armstrong & Brown, Tunbridge Wells, staged a charming group, including the chaste white Cattleya Suzanne Hye de Crom, white forms of C. Maggie Raphael, Lælia autumnalis alba, a good Odontioda wickhamiensis, a few good Odontoglossums, Cypripedium Actæus Drewett's var., the handsome C. Gaston Bultel, C. Queen Alexandra, C. Holdenii Orchidhurst var. and others (Silver Banksian Medal).

Messrs. Cypher & Sons, Cheltenham, staged a fine group of Cypripediums, including C. Boltonii, Rossetti, bingleyense, forms of insigne and Leeanum, and other good forms, with a few Lælia anceps, Calanthes and Masdevallias (Silver Banksian Medal).

Messrs. W. B. Hartland & Son, Cork, sent a number of good Cypripediums, including aureum Œdippe, insigne Sanderæ, Maudiæ, William Lloyd, and others, with Cymbidium Tracyanum and a few Odontoglossums (Silver Banksian Medal).

Mr. G. W. Miller, Clarkson's Nursery, Wisbech, sent a fine group of Cypripediums, including C. Andromeda, Germinyanum, forms of C. Gay Gordon, C. Hera, insigne, Leeanum, and others (Silver Banksian Medal).

Messrs. Hassall & Co., Southgate, staged a few good things, including Lycaste Tunstillii, Brassocattleya Menda, Cymbidium Wiganianum, Cypripedium Beryl Westonbirt var., Læliocattleya Cecilia (see New Hybrids, p. 58), and others.

FIRST-CLASS CERTIFICATE.

CYPRIPEDIUM JULIAN (Vandyke × aureum Œdippe).—A very fine hybrid, having broad, short, white dorsal sepal, with a green base, a purple median line, and a few similar spots, while the petals are very broad, horizontal, and greenish yellow tinged and mottled with purple, and a darker median line. Exhibited by Lt.-Col. Sir George L. Holford.

AWARDS OF MERIT.

CYMBIDIUM CONINGSBYANUM (see New Hybrids, p. 58).

CYPRIPEDIUM SCHLEGELII PUNCTATUM (insigne × Wiganianum).—A charming cream white flower, tinged with rose, and the lip spotted with red-purple. Exhibited by Pantia Ralli, Esq.

ODONTIODA ROYAL-GEM WESTONBIRT VAR. (Odontioda Vuylstekeæ × Odontoglossum armainvillierense).—A very fine form, having broad, buff

sepals and petals, tinged with rose, the centre darker, and the broad lip crimson with a yellow crest. Exhibited by Lt.-Col. Sir George L. Holford.

ODONTOGLOSSUM CANARY (see New Hybrids, p. 58).

ODONTOGLOSSUM ILLUSTRISSIMUM DELL VAR. (Lambeauianum × armainvillierense).—A very richly-coloured variety, having dark claret-red sepals and petals with lighter tips, and the lip white with dark red blotches round the crest. Exhibited by Baron Bruno Schröder.

At the meeting held on January 27th there was again a fine display, and the awards consisted of eight medals, one First-class Certificate, three Awards of Merit, and two Cultural Commendations.

Orchid Committee present: J. Gurney Fowler, Esq. (in the Chair), and Messrs. J. O'Brien (hon. sec.), Sir Jeremiah Colman, Bart., Sir Harry J. Veitch, de Barri Crawshay, R. A. Rolfe, F. Sander, F. J. Hanbury, R. G. Thwaites, W. Waters Butler, T. Armstrong, A. McBean, W. Cobb, J. Charlesworth, J. Cypher, J. E. Shill, W. P. Bound, H. J. Chapman, H. G. Alexander, C. H. Curtis, A. Dye, W. H. White, S. W. Flory, W. Bolton, and Gurney Wilson.

Mrs. Norman Cookson, Oakwood, Wylam (gr. Mr. H. J. Chapman), staged a choice group of hybrids, to which a Silver Flora Medal was given. It contained a beautiful plant of Cypripedium Venus with six flowers, Odontoglossum Telemachus var. Esme and a few other Odontoglossums, beautiful examples of Odontioda Cooksoniæ and O. Bradshawiæ Cookson's var., and five other promising things, for which see New Hybrids, p. 59.

Lt.-Col. Sir George L. Holford, K.C.V.O., Westonbirt (gr. Mr. Alexander), sent Cypripedium Satyr (Euryades × Beryl), a handsome hybrid, having very large dark purple spots on the white dorsal sepal, and broad yellow petals, reticulated with brown; also Sophrocatlælia St.-Arilda (S.-l. Phroso × L.-c. Goldcrest), with light salmon yellow sepals and petals, and the front of the lip rose.

H. T. Pitt, Esq., Rosslyn, Stamford Hill (gr. Mr. Thurgood), sent Odontoglossum crispum Pegasus, a prettily-blotched seedling, Cymbidium Lady Colman Pitt's var., Cypripedium Proserpine (glaucophyllum × Charlesianum), and C. Talma (Charlesianum × Lathamianum).

Pantia Ralli, Esq., Ashtead Park, Epsom (gr. Mr. Farnes), sent a fine example of Cymbidium Gottianum with three racemes.

G. C. Roebeling, Esq., New Jersey, U.S.A. (gr. Mr. James Goodier), sent a plant of the richly-coloured Lælia anceps Roeblingiana.

Francis Wellesley, Esq., Westfield, Woking (gr. Mr. Hopkins), showed a good plant of Cypripedium Wellesleyanum with three flowers.

Messrs. Armstrong & Brown, Tunbridge Wells, staged a fine group, including a good lot of Cypripediums and Cattleyas, with four plants of

Masdevallia Schrœderiana, Cymbidium Woodhamsianum Orchidhurst var., C. Gottianum, the charming Odontioda Cupid, Cœlogyne pandurata, Odontoglossum Sandhurstianum (see New Hybrids, p. 59), some promising seedling O. crispum and others (Silver Flora Medal).

Messrs. Charlesworth & Co., Haywards Heath, staged a choice group, including two fine Læliocattleya Marcus, Oncidium splendidum aureum, good examples of O. cheirophorum and Masdevallia tovarensis, Vanda Amesiana, and a beautiful series of Odontiodas and Odontoglossums, prominent among the latter being good examples of O. Phœbe, Lambeauianum, Doris, armainvillierense and var. xanthotes (Silver Flora Medal).

Messrs. J. & A. McBean, Cooksbridge, staged a beautiful group of Cymbidiums, including about eighty plants of C. Gottianum, with examples of C. Doris, Pauwelsii, Alexanderi, Schlegelii, Holfordianum and Wigania̲num, forming a fine display (Silver Flora Medal).

Messrs. Sander & Sons, St. Albans, staged a choice group, including some good Phalænopsis Aphrodite, Cattleyas, and Odontoglossums, Oncidium bidens, lamelligerum, and splendidum, some finely-coloured Læliocattleya Mauretania and Ernestii, Dendrobium superbiens, Brassocattleya Veitchii, and others (Silver Flora Medal).

Messrs. Cypher & Sons, Cheltenham, staged a good group of Cypripediums, with Sophronitis grandiflora, Oncidium cheirophorum, Calanthes, a good Lycaste lasioglossa, and others (Silver Banksian Medal).

Messrs. Flory & Black, Orchid Nursery, Slough, staged a good group, including Odontoglossum Doris, Lambeauianum, and a seedling O. crispum, Brassocatlælia Ariel (L. purpurata × B.-c. Leemanniæ), Brassocattleya Cecilia (C. Dowiana × B. glauca) (see New Hybrids, p. 58), and a few good Cypripediums (Silver Banksian Medal).

Messrs. Stuart Low & Co., Jarvisbrook, Sussex, staged a good group, including a well-flowered Cattleya Percivaliana, Sophrolælia Psyche, Dendrobium Wardianum album, Masdevallia macrura, tovarensis, and Estradæ, and some good Læliocattleyas and Cypripediums (Silver Banksian Medal).

Messrs. Hassall & Co., Southgate, staged a small group, including Brassocattleya Menda, a good Odontoglossum crispum, and a few hybrid Cypripediums.

Mr. W. A. Manda, St. Albans, staged a small group of Cattleya Trianæ, including some well-coloured forms.

Messrs. Swan & Price, Keyfield Nurseries, St. Albans, sent a small group of Cypripediums, and a white form of Lælia anceps.

FIRST-CLASS CERTIFICATE.

CATTLEYA × TITYUS VAR. A. MCBEAN (Enid × Octave Doin).—A

large and brilliantly-coloured form, with very undulate purple-rose sepals and petals, and a ruby crimson lip. Exhibited by Messrs. J. & A. McBean.

AWARDS OF MERIT.

CYPRIPEDIUM DESDEMONA (Mrs. Cary Batten × Alcibiades).—A very handsome form, having a broad, brownish yellow dorsal sepal with a white margin, a very broad median band with some veins on each side, and very broad, brown and yellow petals and lip. Exhibited by Messrs. Charlesworth & Co.

ODONTIODA DORIS (see New Hybrids, p. 59).

ODONTIODA SIBYL (see New Hybrids, p. 59).

CULTURAL COMMENDATIONS.

CYMBIDIUM PAUWELSII.—To Mr. J. E. Shill, Orchid grower to Baron Bruno Schröder, The Dell, Englefield Green, for three fine plants, bearing seven very long spikes of flowers.

ODONTOGLOSSUM AMABILE SPLENDENS.—To Messrs. Charlesworth & Co., for a fine plant, bearing a spike of fourteen magnificent flowers.

MANCHESTER & NORTH OF ENGLAND ORCHID.

At the meeting held at the Coal Exchange, Manchester, on Thursday, January 15th, 1914, the members of Committee present were: Rev. J. Crombleholme (in the chair), Messrs. R. Ashworth, J. Bamber, J. Cypher, J. Evans, A. Hanmer, J. Howes, J. Lupton, D. McLeod, W. J. Morgan, C. Parker, W. Shackleton, Wm. Thompson, H. Thorp, Z. A. Ward, G. Weatherby, and H. Arthur (Secretary).

R. Ashworth, Esq., Newchurch (gr. Mr. Gilden), was awarded a Large Silver Medal for a group of good Odontoglossums, Odontioda Devosiana and Charlesworthii, Cypripedium bellatulum album, Gomesa Barkeri, and others.

A. Warburton, Esq., Haslingden (gr. Mr. Dalgleish), was also awarded a Large Silver Medal for a fine group of Cypripediums, noteworthy among them being C. aureum virginale (for which a Cultural Certificate and Bronze Medal were awarded to the gardener), various Odontoglossums, including the rare O. sceptrum Masereelianum, and Ocidium lamelligerum.

H. Arthur, Esq., Blackburn, sent Cypripedium insigne excelsior, Sanacderæ, Actæus Sybil, nitens Ball's var., and Oncidium serratum, with a spike carrying forty-one flowers.

Col. J. Rutherford, M.P., Blackburn (gr. Mr. Lupton), sent Cymbidium Holfordianum.

Messrs. Cypher & Sons, Cheltenham, were awarded a Silver-gilt Medal for a fine group of Cypripediums, Calanthe Bryan, Wm. Murray, bella, and Harrisii, Masdevallia Schrœderiana, Hincksiana, bockingensis, Lælia anceps Sanderiana, and others.

Messrs. Sander & Sons, St. Albans, were awarded a Silver Medal for a group containing a nice batch of Lælia Gouldiana, with choice Odontoglossums and Cattleyas.

Messrs. A. J. Keeling & Sons, Bradford, staged Cypripedium keighleyense, aureum Hyeanum, Leeanum Corona, and Diomede, Odontoglossum E. Watkinson, and Lælia anceps Sanderiana.

Messrs. Hassall & Co., Southgate, London, sent Lycaste Tunnstillii and Cypripedium Beryl Westonbirt var.

Mr. W. Shackleton, Great Horton, Bradford, staged two fine varieties of Odontoglossum crispum, and seedling Cypripediums of the insigne type.

Mr. D. McLeod, Chorlton-cum-Hardy, staged Cypripedium Boltonii and a few cut flowers.

A few other exhibitors names appear under certificated plants.

FIRST-CLASS CERTIFICATES.

Odontioda Thompsoniæ, a fine round flower, 2½ inches across, the segments vivid scarlet, shaded with crimson and edged with white, and the lip broad and margined with white; Odontoglossum Hercules, a massive flower over four inches across, of perfect shape, dark chestnut, with white veins and markings, the margin shaded with rose, and the lip with a solid blotch; O. Papilio, a fine flower, white, flushed with rose, and blotched and spotted with bright purple; Cypripedium waltonense magnificum (Rupert × Thompsonianum), a massive flower, with dorsal sepal 3½ inches across, margined with white, suffused with rose and spotted with purple, the base green and a dark purple band down the centre, petals light brown with dark markings, and pouch of similar colour; from Wm. Thompson, Esq.

Odontoglossum illustrissimum var. Nonpariel, a fine round flower, with brilliant colouring, from R. Ashworth, Esq.

AWARDS OF MERIT.

Odontoglossum amaranthum and O. illustrissimum Creole, from Wm. Thompson, Esq.

Odontoglossum illustrissimum Janua and Odontioda Floryi Ashlands var., (C. Noetzliana × O. Andersonianum), from Rd. Ashworth, Esq.

Cypripedium Iona (bellatulum × Fairrieanum), from His Grace the Duke of Marlborough.

Cypripedium Lord Wolmer var. Zealandia, from Rev. J. Crombleholme.

Brassocattleya Menda (C. labiata virginalis × B.-c. Veitchii Queen Alexandra), from R. le Doux, Esq.

Cypripedium leyburnense Fern Bank var., from Chas. Parker, Esq.

Lycaste Beryl, from Messrs. Cypher & Sons.

Læliocattleya Cecilia (C. Trianæ × L.-c. luminosa), from Messrs. Hassall & Co.

AMERICAN EXHIBITIONS.

Orchids, as we learn from *Horticulture*, were well exhibited at the autumn exhibitions in New York, Boston, and Philadelphia.

At the meeting of the Horticultural Society of New York the Orchids were simply superb and really a show in themselves. The gem of the lot was shown by Julius Roehrs Co., under a glass case—a beautiful plant of Læliocattleya Oriole. The sweepstakes winner in the Orchid classes was Mrs. H. Graves (gard. Edwin Thomas). Her group of yellow forms of Cypripedium insigne was lovely. The following is the award list :—

SPECIAL PRIZES.

Clement Moore (gard. J. P. Mossman), group of Cattleya hybrids, Silver Medal; J. A. Manda, group sf Cattleya labiata.

PLANTS—FOR COMMERCIAL GROWERS.

Collection: Julius Roehrs Co., 1st; Lager & Hurrell, 2nd. Novelty not before exhibited before this Society: Julius Roehrs Co., Silver Medal. 6 varieties, Lager & Hurrell. 6 Cypripediums, Julius Roehrs Co., 1st; Lager & Hurrell, 2nd. Cattleya labiata: J. A. Manda, 1st; Lager & Hurrell, 2nd. 3 varieties: J. A. Manda, 1st; Lager & Hurrell, 2nd.

FOR NON-COMMERCIAL GROWERS.

Collection: Clement Moore (gard. J. P. Mossman), 1st; S. Untermyer, 2nd. Cattleya: Clement Moore. Oncidium: Mrs. F. A. Constable. Cypripedium: Mrs. Henry Graves (Edwin Thomas, gardener). Dendrobium: S. Untermyer.

OPEN TO ALL.

Clement Moore prize for most beautiful Cypripedium: Mrs. Henry Graves. Clement Moore prize for most beautiful Cattleya: J. A. Manda. Display of yellow forms of Cypripedium insigne: Mrs. Henry Graves, 1st; Lager & Hurrell, 2nd. Display of Læliocattleyas, Brassocattleyas, Brassolælias, or hybrid Cattleyas: Clement Moore.

CUT FLOWERS—FOR COMMERCIAL GROWERS.

Collection arranged for effect: J. A. Manda. Collection of Cypripediums: Lager & Hurrell.

FOR NON-COMMERCIAL GROWERS.

Collection arranged for effect: Mrs. H. Pratt, 1st; Clement Moore, 2nd.

At the show of the Massachusetts Horticultural Society, held at Boston, the competition in Orchids was very keen. The winning tables, in order of prizes, were by Mrs. Gardner, F. J. Dolansky, and Mrs. C. G. Weld, but J. T. Butterworth also had a table full of gems. F. J. Dolansky had the best specimen Cattleya, and Mrs. Gardner the best Cypripedium.

At the Philadelphia Show an unique Orchid exhibit was by W. Kleinheinz—a half-oval pyramid twenty feet high and some twenty feet diameter at the base—one of the great features of the show, and while it got a first prize and a Silver Medal that was but the least the judges could do. Alphonse Pericat put up a good display of Orchids, and Louis Burk's Orchid display was a leading feature.

At the show of the Lennox Horticultural Society (Mass.), A. J. Loveless won the Giraud Foster Cup for Orchids.

NEW HYBRIDS.

LÆLIOCATTLEYA SWANBOROUGHII.—A promising hybrid raised in the collection of Mrs. Sheppee, Holly Spring, Bracknell, by Mr. W. C. Swanborough, from L.-c. Dominiana ♀ × Andromeda, and now producing its first two flowers. The sepals and petals are lilac, with a darker median line, and have an expanse of over $3\frac{3}{4}$ inches, while the lip is intense claret-purple, and very undulate, with a deep yellow disc and a few darker veins. It is the first of the batch to bloom.

The following five hybrids were entered on the Registration Form of the R.H.S. Hybrid Orchid Register on January 13th last, the plants being also exhibited:—

CYMBIDIUM CONINGSBYANUM (grandiflorum ♀ × insigne).—A fine hybrid, having greenish yellow flowers, with much red spotting on the cream white lip. Exhibited by G. Hamilton-Smith, Esq., Finchley (gr. Mr. Coningsby), Award of Merit, R.H.S., Jan. 13th, 1914.

LÆLIOCATTLEYA CECILIA (C. Trianæ ♀ × L.-c. Truffautiana).—A promising hybrid, with bronzy rose sepals and petals, and the front of the ip claret-purple. Exhibited by Messrs. Hassall & Co., Southgate, R.H.S., Jan. 13th, 1914.

ODONTIODA HEMPTINNEANA (C. Nœtzliana ♀ × O. eximium.—A fine hybrid, with dark scarlet flowers. Exhibited by Messrs. Sander & Sons, St. Albans, R.H.S., Jan. 13th, 1914.

ODONTOGLOSSUM CANARY (armainvillierense × oakwoodiense ♀).—A beautiful canary yellow hybrid, having broad, undulate segments, with a very few red-brown spots. Raised by Messrs. Charlesworth & Co. Exhibited by Pantia Ralli, Esq., Ashtead Park (gr. Mr. Farnes), Award of Merit, R.H.S., Jan. 13th, 1914.

ODONTOGLOSSUM IGNEUM (cirrhosum ♀ × Wilckeanum).—A beautiful hybrid, having flowers somewhat resembling O. Phœbe, profusely spotted with brownish red on a white ground. Exhibited by Messrs. Sander & Sons, St. Albans, R.H.S., Jan. 13th, 1914.

Eight others were entered and exhibited on January 27th:—

BRASSOCATLÆLIA ARIEL (B.-c. Leemanniæ × L. purpurata ♀).—A very promising hybrid, having cream white sepals and petals, tinged with pink, and the fringed lip bright rose-pink with a yellow throat. Exhibited by Messrs. Flory & Black, Orchid Nursery, Slough, R.H.S., Jan. 27th, 1914.

BRASSOCATTLEYA CECILIA (B. glauca × C. Dowiana aurea ♀).—A very pretty little hybrid, having cream white sepals and petals, and a rose-coloured lip, with light yellow throat. Exhibited by Messrs. Flory & Black, Orchid Nursery, Slough, R.H.S., Jan. 27th, 1914.

ODONTIODA DORIS (Odontioda Cooksoniæ ♀ × Odontoglossum amabile).—A handsome hybrid, having well-shaped sepals and petals, with a very large salmon-red blotch on each, and the margin rosy, the intervening area being yellowish white. Exhibited by Mrs. Norman Cookson, Oakwood, Wylam (gr. Mr. H. J. Chapman). Award of Merit, R.H.S., Jan. 27th, 1914.

ODONTIODA MARGARET (Oda. Bradshawiæ Cookson's var. ♀ × Odontoglossum armainvillierense).—A pretty light-coloured hybrid, having whitish sepals, with a salmon-red blotch on each. Exhibited by Mrs. Norman Cookson, R.H.S., Jan. 27th, 1914.

ODONTIODA MARION (Oda. Bradshawiæ Cookson's var. ♀ × Odontoglossum unnamed).—A promising hybrid, having flowers of good shape, tinged with rose and well-blotched with red. Exhibited by Mrs. Norman Cookson, R.H.S., Jan. 27th, 1914.

ODONTIODA SIBYL (Oda. Bradshawiæ Cookson's var. ♀ × Odontoglossum dark seedling).—A handsome hybrid, having flowers of a nearly uniform tint of light claret purple, and the crest of the lip yellow. Exhibited by Mrs. Norman Cookson, Award of Merit, R.H.S., Jan. 27th, 1914.

ODONTOGLOSSUM VIVIENNE (Oda. Cooksoniæ ♀ × Odontoglossum crispum Britannia).—A promising hybrid, having the flowers much blotched with red on a pale rosy ground. Exhibited by Mrs. Norman Cookson, R.H.S., Jan. 27th, 1914.

ODONTOGLOSSUM SANDHURSTIANUM (coronarium ♀ × Edwardii).—A remarkable hybrid, most like the former in general shape, and having broad, undulate, chocolate-purple sepals and petals, and a somewhat three-lobed lip, with a dark red-purple area in front of the yellow crest, and the apex yellowish white. Exhibited by Messrs. Armstrong & Brown, R.H.S., Jan. 27th, 1914.

THE AMATEUR'S COLLECTION.

By C. ALWYN HARRISON.

IN many respects the cultural routine will be much the same as that advised last month. Owing, however, to the days increasing in length, a little more air can often be advantageously admitted, whilst damping down may be increased to a slight extent. All plants in active growth will probably need a dose of water every other day, or every third if the weather is cold and dull, but in respect to watering so much rests upon the good judgment of the cultivator, for climatic conditions and adaptability of houses and season are widely varied in different parts of the country, hence no set rules can be given. During the winter months, however, it is wiser to err on the side of giving too little than too much water. No

shading will yet be needed, for sunlight is now very necessary to the healthy development of the plants.

In a mixed Intermediate Orchid house there are always many plants in bloom and various stages of growth. Winter-flowering Cypripediums will now be mostly over, and should, if requiring it, now be repotted, doing this operation with care, removing any dead roots and leaves and afterwards setting the plant firmly in the new compost. Various materials are recommended by different growers, but I advise a mixture of good yellow loam, osmunda fibre, crushed crocks, and sphagnum, using this in a damp state, and keeping the plant rather on the dry side until it is seen to be rooting nicely in the new soil.

The majority of the winter-blooming Oncidiums are now over, and these, to keep them from deteriorating, must be repanned annually, using a mixture of polypodium fibre, oak leaves, and sphagnum moss. The present is a very suitable time for doing this, keeping the newly-panned plants well up to the light and almost dry. Towards the end of the month fresh signs of root activity should be observed, when the supply of water may be increased.

Dendrobiums should now be showing for flower, and these must be given as light a position as possible, to enable them to expand their blooms to perfection. A good dose of water will be usually required daily, as they are decidedly thirsty plants. The flowering bulbs should be neatly staked, when a much finer effect will be derived from a finely-bloomed specimen.

Any plants of Lycaste Skinneri must now be kept well supplied with water, as their season for blooming is now approaching. Considering that they are so free-flowering and easy to manage, one wonders that they are not more widely grown.

Epidendrum vitellinum should now be ready for repotting, using a rich mixture of osmunda fibre, oak leaves, and sphagnum moss, and taking great care never to set the base of the bulbs below the level of the rim of the pot, as otherwise they are very susceptible to rotting.

SUGGESTED ADDITIONS.

LÆLIOCATTLEYA LUMINOSA.—This is one of the handsomest of this race of bigeneric hybrids, and was raised from Cattleya Dowiana aurea and Lælia tenebrosa, and many distinct and very beautiful forms exist. Usually, however, the sepals and petals are pure lemon yellow, whilst the lip is deep purple veined with gold. These handsome flowers are of good size and are usually borne three to five on a spike during the months of July and August. It is generally easily procurable in good healty plants, and is not shy in flowering as are some hybrids of Cattleya Dowiana aurea. Læliocattleya luminosa should be given a slight rest after flowering, but as soon as fresh root action begins the plant may be repotted.

ORCHIDS IN SEASON.

SEVERAL very beautiful Odontoglossums are sent from the collection of W. Thompson, Esq., Walton Grange, Stone, by Mr. J. Howes. O. illustrissimum var. Creole has broad, nearly solid claret-coloured segments, with a little white at the apex of the sepals and petals, and a white apex to the broad lip. Of the others Mr. Howes remarks that they have unfortunately no record of parentage. O. Hercules is a handsome flower, over four inches across, with broad segments, heavily blotched with red-purple on a white ground. O. Papilio is a giant form of the Rolfeæ type, with rounded, claret-purple blotches on a pale ground. O. amaranthum has very round, claret-purple segments, with narrow, pale, undulate margin, and an armainvillierense-like lip. Odontioda Thompsoniæ has an intense crimson flower, with a whitish line just inside the margin of the sepals and petals, and may be a form of O. Vuylstekeæ or a secondary hybrid from it.

A fine flower of Angræcum Veitchii is sent from the collection of W. P. Burkinshaw, Esq., The West Hill, Hessle, E. Yorks, by Mr. J. T. Barker. It most resembles the A. sesquipedale parent in size and shape, and the spur is about eight inches long. The pure white Lælia anceps called Worthington's alba is also sent, and Mr. Barker remarks that it is distinct from Bull's alba, both in habit of growth and in the shape of the flowers.

A very beautiful form of Odontoglossum crispum is sent from the collection of O. O. Wrigley, Esq., Bridge Hall, Bury, by Mr. Rogers, who remarks that it has flowered out of some imported plants and is considered above the average in quality. It is of fine shape, with broad, well-crisped petals, and the colour white with a tinge of rose at the apex of the sepals.

MR. PANDELI RALLI.—The name of Mr. Pandeli Ralli was briefly mentioned under "Losses during the year," at page 2. The report on which it was based, and which we believe arose through confusion with a gentleman of somewhat similar name who died at Liverpool, happily proves erroneous, and we are glad to know that Mr. Ralli is alive and well. His collection of Orchids at Alderbrook, Cranleigh, consists largely of Cattleyas, which are grown for cut flowers, with a few hybrids, and he has been a subscriber to the *Orchid Review* for the last thirteen years.

THE ORCHID REVIEW.—We have to thank numerous esteemed correspondents for congratulations on the *Orchid Review* having attained its majority, and on its improved appearance in its new dress. They also express good wishes for increased success in the future. One or two suggestions received shall not be lost sight of.

ORCHID NOTES AND NEWS.

TWO meetings of the Royal Horticultural Society will be held at the Royal Horticultural Hall, Vincent Square, Westminster, during February, on the 10th and 24th, when the Orchid Committee will meet at the usual hour, 12 o'clock noon. The Annual General Meeting will be held on the former date at 3 p.m.

The Manchester and North of England Orchid Society will hold meetings at the Coal Exchange, Manchester, on February 12th and 26th. The Committee meets at noon, and the exhibits are open to inspection of members and the public from 1 to 4 p.m.

The Report of the Council of the R.H.S. for 1913 opens with the following reference to Sir Trevor Lawrence :—

"The year 1913 began with the shadow, as it were, of gloom cast over it by the resignation of our President, and it has ended in the great sorrow of his death, which took place on December 22nd, within a few days of his 82nd birthday. Seldom, if indeed ever, has a Society been served by its President so long and so ably as the Royal Horticultural Society has been served by Sir Trevor Lawrence. Elected to the President's seat in the very difficult days of the Society's history in 1885, Sir Trevor has held the reins ever since, up to the spring of 1913, and has guided the Society with steadily increasing progress out of the quagmire of difficulties in which he found it into its present state of prosperity."

It also contains the following references to Orchids :—

ORCHID REGISTER.—It has been decided to establish a Register of Orchids, not only, but specially, for the sake of recording the parentage of Hybrids and of securing their correct and permanent nomenclature. Mr. R. A. Rolfe has been appointed Official Recorder. The Register will be carried back as far as possible by careful examination of old documents, and the Council hope that Orchid growers having private records of genera, species and hybrids, will assist the compilation by lending them to the Society to be copied for this purpose. The immediately pressing work of the Recorder, however, will be the entering up on the Register of every new Orchid shown, with particulars of its parentage, raiser, owner, &c., as far as is known.

CUP FOR CATTLEYAS.—Mr. E. H. Davidson has again very kindly presented a Cup for the best Cattleya in the Chelsea Show.

LAWRENCE MEDAL.—The Lawrence Medal for 1913 has been awarded to Mr. G. F. Moore, Bourton-on-the-Water, for his exhibit of Orchids on January 7th, 1913.

From the Book of Arrangements for the year we learn that the Society's Spring Show will be held in the Gardens of the Royal Hospital, Chelsea, from May 19th to 21st, and the Summer Show at Holland House, Kensington, from June 30th to July 2nd.

The following arrangements for staging the Orchids have been made: The front tier of the staging will be two feet high; the group may thence rise to an average height of seven feet from the ground. Seven feet is fixed on as being the average of the extreme permissible limit of the tops of the flowers (not of the pots), as above that height few people can see them. Palms and light foliage plants used as decoration are not subject to this limit of seven feet.

Orchids submitted *for Certificate* must be entered by post before 11 a.m. on the Saturday preceding the meeting. All such plants MUST BE NAMED, and must be placed on the table reserved for Certificate plants, and not mixed up in any group. Un-named plants are not eligible for Certificate, and erroneous names will be rectified as far as possible. It is understood that if a plant obtains any award a painting may be made by the Society's artist.

Awards will not be given to any Orchids of which the natural size and character of the flowers have, in the opinion of the Committee, been in any way changed or "improved" through the removal of a bud or buds, or part of the spike.

A Register of Orchids is kept. Orchid raisers and growers are requested to bring their plants *when in flower for the first time* (even though they may not then be sufficiently developed to enter for Award), and to register the name and parentage, together with the owner and raiser's names, on a form to be obtained from the Offices. This form should be sent with the plant, and will be placed before the Committee, who, after being satisfied that the name is in order, will enter it on the Register, and once so recorded that name must be recognised for all crosses of similar parentage subsequently shown, **unless valid reasons be given.**

The only change in the Orchid Committee is the addition of Mr. Eric H. Davidson, Orchid Dene, Twyford, Berks, in place of Mr. John S. Moss, deceased. Otherwise the names are as given at pp. 78, 79 of our last volume.

Mr. E. H. Wilson, the well-known plant collector, is about to take a year's sojourn in Japan, and we learn from *Horticulture* that he was entertained to a farewell dinner on January 1st last by the Horticultural Club of Boston, of which he is honorary secretary. He was also presented with a beautiful gold watch and chain, with jewelled brooches for Mrs. and Miss Wilson. Good wishes were expressed for a safe voyage, a successful

outcome of his venture, and his safe return to Boston a year hence. By the way, Mr. Wilson has just published an interesting work, in two volumes, entitled *A Naturalist in Western China*.

ANGLO-AMERICAN EXHIBITION.—The re-laying of the extensive grounds at the White City, Shepherds Bush, is proceeding apace for the opening in May next, and numerous firms, from both sides of the water, are preparing a brilliant display as a demonstration of a century's progress in the art and science of horticulture. The object of the Exhibition was explained at page 360 of our last volume.

ORCHID PORTRAITS.

CALANTHE SIEBERTIANA.—*Gard. Chron.*, 1914, i. p. 28, fig. 15.

CATTLEYA ANDREANA MCBEAN'S VAR.—*Gard. Mag.*, 1914, p. 34, with fig.

CATTLEYA MAGGIE RAPHAEL DELL VAR.—*Gard. Mag.*, 1914, p. 7, with fig.

CATTLEYA PERCIVALIANA ALBA LADY HOLFORD.—*Gard. Chron.*, 1914, i. p. 10, fig. 5.

CYMBIDIUM SCHLEGELII PUNCTATUM.—*Gard. Chron.*, 1914, i. p. 50, fig. 25.

CYPRIPEDIUM BELLATULUM.—*Journ. Hort.*, 1914, i. p. 37, with fig.

CYPRIPEDIUM JULIAN.—*Gard. Chron.*, 1914, i. p. 45, fig. 24.

CYPRIPEDIUM LEEANUM VAR. GRATRIXIÆ—*Journ. Hort.*, 1914, i. p. 85, with fig.

ODONTIODA ROYAL GEM WESTONBIRT VAR.—*Gard. Mag.*, 1914, p. 45, with fig.

ODONTOGLOSSUM CANARY.—*Gard. Chron.*, 1914, i. p. 44, fig. 23.

PAPHINIA CRISTATA.—*Garden*, 1914, p. 33, with fig.

PHALÆNOPSIS APHRODITE.—*Horticulture*, 1913, p. 893, with fig.

ANSWERS TO CORRESPONDENTS.

[*Orchids are named and questions answered here as far as possible. Correspondents are requested to give the native country or parentage of plants sent. An* ADDRESSED *postcard must be sent if a reply by post is desired (abroad, reply postcards should be used). Subjects of special interest will be dealt with in the body of the work*].

Records of several hybrids have been received as possibly new crosses, but in several cases the parent are forms of older hybrids. It is sometimes overlooked that the *Orchid Stud-Book* contains a complete index of synonyms.

Received with thanks.—R.G.T., J.H., T.W.B., F.H.M., W.S., F.S., H.A., J.T.B., A.H.

R.G.T.—A note is unavoidably held over, with several others.

Photographs received with thanks.—J.T.B., Dr. H.G.

Catalogue received.—Messrs. Wm. Bull's Seed and Bulb Catalogue for 1914.

VOL. XXII. MARCH, 1914. No. 255.

THE ORCHID REVIEW

Edited by R. ALLEN ROLFE, A.L.S.

CONTENTS:

	PAGE
Amateur's Collection	90
Answers to Correspondents	96
Calendar of Operations for March ...	77
Chondrorhyncha bicolor	91
Cymbidium Cooperi	94
Cypripediums from Bridge Hall, Bury	94
Dendrobiums, Imported	93
Kew, Gift of Orchids to	80
Lawrence, the late Sir Trevor ...	92
Leafless Orchids	73
New Hybrids	95
Odontoglossum amabile var. Starlight	81
Odontoglossum grande, Culture of ...	76
Odontoglossums, raising from seed ...	68
Orchid Notes and News	95
Orchid Portraits	96
Orchids at home	89
Origin of Species by crossing ...	70
Our Note Book	65
Societies	82
Manchester and North of England Orchid	87
Royal Horticultural	82

ILLUSTRATIONS.

Dendrophylax funalis	73
Odontoglossum amabile var. Starlight	73
Orchid seedlings grown in glass tubes	69

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The Orchid Review

VOL. XXII. MARCH, 1914. No. 255.

OUR NOTE BOOK.

THE progress of hybridisation among Orchids has frequently been discussed in these pages, and truly there is nothing like it in the annals of horticulture. But every Orchidist knows that some of his hybrid productions can be matched among wild plants, and some of them have occasionally been startled, not to say incredulous, when some familiar hybrid, whose origin and history were well-known to him, has suddenly appeared among imported plants, as in the case of Calanthe Veitchii and Dendrobium Ainsworthii. But it would be a rash generalisation to conclude from such evidence that there is nothing new under the sun. When the facts are the other way about, and the hybridist unexpectedly produces artificially some plant which has hitherto passed as a wild species, he not unnaturally removes it mentally from the list of species, perhaps with a smile of satisfaction in discovering that his botanical friends don't know everything—a fact which they would be among the first to admit. He would scarcely conclude without stronger evidence that species actually arise by crossing. Yet the subject was discussed by the Linnean Society at its last meeting, when a paper was read by Dr. John Lotsy, of Haarlem, "On the Origin of Species by Crossing," an abstract of which appears at pp. 70-73.

Dr. Lotsy apparently advances the opinion that species—if there are any, for he says that they are mere abstractions, not realities, and that nobody is able to show us one—arise solely by crossing. Possibly he would prefer to abolish the term species, as meaningless, or at least open to endless misconstruction, and substitute that of homozygote. At all events he says "the world is populated—with the exception of heterozygotes—by a large number of sharply-defined stable homozygotes." Thus there is no room for species and varieties. And he remarks: "If a species is a perfectly stable genotype, reproducing faithfully its kind for ever, unless crossing interferes, all differences between the individuals belonging to a

genotype must be non-heritable modifications." But we should say there is much virture in that IF, and we do not think that species and varieties are going to be got rid of it in this free and easy fashion.

It may be difficult to give an exact and comprehensive definition of a species, but the difficulty will not be got over by calling it a homozygote. And we cannot wait while experiments are undertaken to show whether the hundreds of thousands of recognised species faithfully reproduce their kind for ever. And there are organisms that are homozygous in one character and heterozygous in another. How are these to be defined under the new scheme? But we do not admit that species are mere abstractions. Are Dendrobium nobile and Cypripedium insigne abstractions because they vary? Dendrobium aureum is found on the lower slopes of the Himalayas, in Ceylon, in the Philippines, and in the island of Celebes, and is not absolutely identical in each separate area, but it is none the less a well-defined species in the ordinary acceptation of the term. And it would be absurd to say that any differences that it presents in these different areas are due to hybridisation. Without attempting an exact definition, and without requiring that they shall reproduce faithfully their kind for ever, we venture to assert that species exist, and that they can be recognised by their characters and behaviour.

Species originate, increase and multiply, and diffuse themselves from their original birthplace, so far as climatal and other barriers permit. And in gradually extending their area they come under the influence of changed conditions, and, being plastic, they respond to the environment and, variation resulting, ultimately give rise to what are known as geographical races, or representative species, by the survival of the variations best fitted for the new conditions. Every species occupies a definite geographical area, over which it extends more or less continuously according to circumstances, and it is a fact well known to naturalists that the most closely allied species mainly occupy distinct geographical areas. The changes may be, and undoubtedly are, very gradual, but such evidence establishes the case for the existence of inheritable variability. Crossing is undoubtedly a potent cause of variation, but to say that it is the sole cause is only to ignore the evidence of geographical distribution.

Hybrids are far more common in nature than many of the older naturalists were willing to admit, and the fact has been chiefly demonstrated by numberless horticultural experiments, which, however, were largely undertaken with other objects in view. The behaviour of hybrids, also, is understood sufficiently to show that it is not parallel with the phenomena

seen among recognised species. And here we cannot agree with Dr. Lotsy when he says that until recently it was believed that crosses between so-called species gave stable offspring, while those between so-called varieties showed segregation. What has long been recognised is that first crosses between species show a substantial amount of uniformity in the offspring, but when the offspring are themselves crossed a great amount of segregation and reversion takes place. And the cause we attribute to the fact that a hybrid is a mosaic, and, owing to incompatability between diverse elements, does not produce uniform reproductive cells as a species does.

But segregation is not a universal law, even among hybrids, a fact demonstrated by Gärtner and Wichura in several distinct genera, and alluded to by Mendel when he spoke of "hybrids which remain constant in their progeny and propagate themselves as truly as the pure species." And he added: "For the history of the evolution of plants this circumstance is of special importance, since constant hybrids acquire the status of new species. The correctness of the facts is guaranteed by eminent observers, and cannot be doubted. Gärtner had an opportunity of following up Dianthus Armeria deltoides to the tenth generation, since it regularly propagated itself in the garden." Dr. Lotsy himself exhibited a stable hybrid Antirrhinum hybrid that he had obtained from a primary cross between distinct species.

Such plants represent potential hybrid races, and any that exist in a wild state might show the usual characteristics of a recognised species. And Kerner long ago showed that certain hybrid races did exist in a wild state, and were capable of extending their area; and the writer, in a paper entitled "Hybridisation viewed from the standpoint of Systematic Botany," read in 1899, remarked that such hybrid races might also have existed in past geological periods, and that hybridisation might yet have to be considered in connection with the very origin of species—all of which is, of course, very far from asserting that species can originate by no other means.

As for the idea that genotypes are the real, long sought-for units of the natural system, and that, like Weisman's germ plasm, they are unalterable under all circumstances, that climate and the hundred-and-one conditions that go to form the sum total of the environment have no cumulative effect during a series of generations—that there are no such things in Nature as adaptations—we still await proof. Johannsen's "pure lines" appear to represent a condition of things where sexual and vegetative reproduction are synonymous terms.

With Darwin, we regard natural selection working upon variations as the guiding principle of evolution, and variation began before sexual reproduction, though it must have been much increased by the advent of the latter. And isolation is an absolute barrier against crossing.

RAISING ODONTOGLOSSUMS FROM SEED.

SOME recent inquiries show that the difficulty of raising Odontoglossums from seed is still felt, in some cases no results being achieved when the conditions appear to be favourable. A perusal by a correspondent of the article on Fungus-Co-operation in Orchid roots sent to us by the late M. Noel Bernard (*O.R.*, xiv. pp. 201-203) has elicited the following note:—

The article on Fungus-Co-operation in Orchid roots is particularly interesting in connection with Odontoglossum seedlings. I believe in practice, apart from the fungus theory, Odontoglossum seed is now generally sown on pots in which an established plant or seedling is growing and is found to be a successful method. Now why is this? Does it not point to the presence of some beneficial material in the compost due to the influence of the existing growing Orchid. If this is so there is a reason and possible explanation. It has occurred to me that if this fungus or matter does affect the vitality of the germinating seed, and is present in the compost of a growing plant, that some of the rootlets, together with a small piece of compost taken from the pot, cut up fine and mixed with new material, might prove suitable on which to grow the seed. I have to-day tried the experiment and await result.

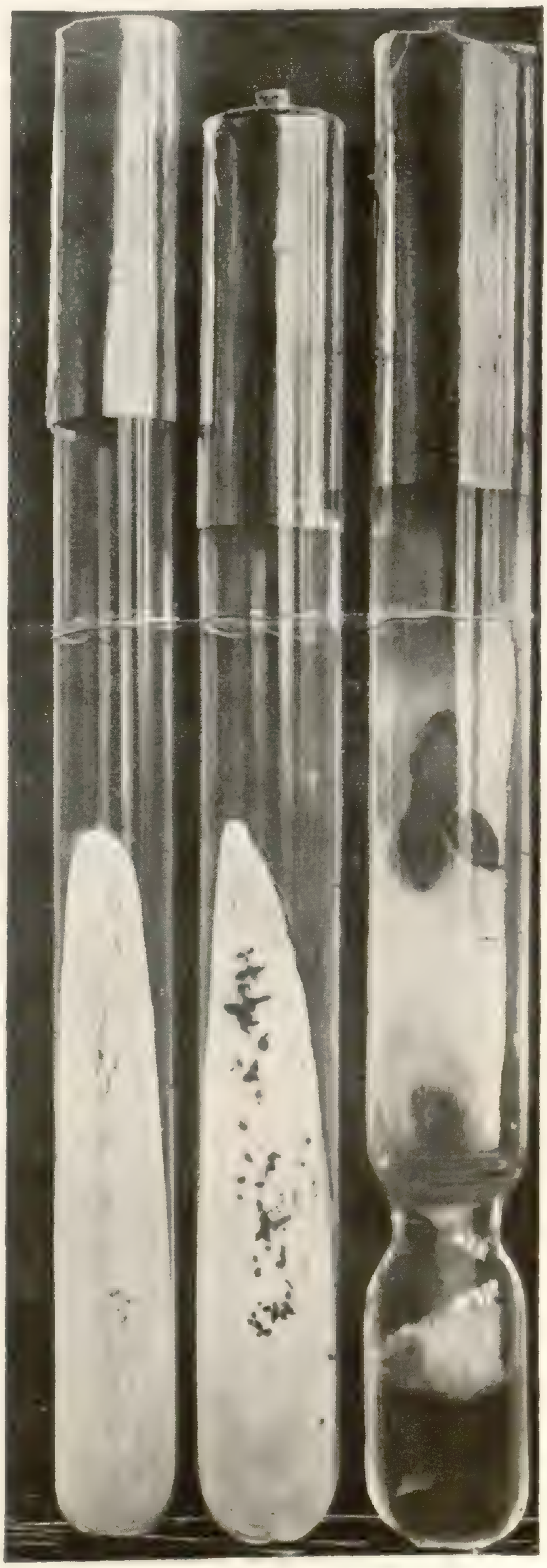
E. CLEMENT.

The Nook, Maidstone.

In connection with this note it may be interesting to reproduce the photograph and the substance of the note sent to us by M. Bernard. He remarks: The culture tubes represented in the photograph (fig. 12) are ordinary glass tubes, closed by a plug of cotton-wool and covered above this by a cap of tinfoil, so as to render impossible the entrance of moulds or other micro-organisms. These tubes have been sterilised by heat before making the cultures.

The left-hand tube contains seeds of an Odontoglossum which had been sown antiseptically, without any other growth, on the inclined surface of the whitish nutritive jelly occupying the lower part of the tube, and had remained for a period of four months. These seeds have simply turned green and swollen slightly, but they have not otherwise developed, and they are in the photogragh only distinguishable as points on the wet surface of the jelly.

The second tube contains a culture made in the same way with the seeds of the same plant, but which has been inoculated for two and a-half months with a fungus found on the roots of Odontoglossums. The fungus has developed, forming on the surface of the nutritive jelly a delicate network (invisible in the photograph), and it has also affected the seeds, for one can see well that all these are germinating in a regular manner, and contrast by their development with those in the neighbouring tube.



The third tube in the photograph need not concern us here. It contains a single seedling Phalænopsis, developed from a seed sown seven months previously on a piece of cotton-wool dipping at the base into a nutrient fluid in which the fungus mycelium has developed.

M. Bernard remarks that the presence of the fungus in the house is as indispensable as in his culture tubes, and he believes that non-success is often due to the absence of the necessary fungus. He has always found fungi in the young seedlings sent to him by growers, as well as in seedlings collected in their native homes. The fungi which succeed with Cattleyas and Cypripediums do not work at all in the case of Odontoglossums. The cultures were obtained from the roots of Odontoglossums, and even these varied considerably in their activity, some bringing about rapid germination while others had no appreciable effect. M. Bernard is of the opinion that Orchid amateurs will one day see the utility of a suitable laboratory for such horticultural research. But we are more inclined to lay stress upon correct cultural conditions in the house, for the fungi are presumbly present wherever Odontoglossums are grown.

ORIGIN OF SPECIES BY CROSSING.

THE meeting of the Linnean Society held on February 19th, at which a paper was read by Dr. John P. Lotsy, of Haarlem, "On the Origin of Species by Crossing," illustrated by diagrams, lantern-slides, and dried specimens, was the longest and most crowded in the Society's history, the subject occupying the whole evening until after eleven o'clock.

The lecturer said:—We have in all questions of evolution to gather our facts from individuals, because species as well as varieties are abstractions, not realities. Nobody is able to show you a species or a variety; all he can do is to show you one or more individuals which he believes to belong to the species or variety under discussion.

Of *individuals* we know two kinds; homozygotes and heterozygotes. The first are stable, the latter segregate, earlier or later, into new homozygotes. The offspring of a homozygote is identical with its parent with the exception of mere temporary, non-transmittable modifications. If this be true, selection in the progeny of a definite homozygote can have no effect. That it *has* no effect has been proved by Johannsen.

A homozygote consequently is absolutely stable and produces offspring which are genetically identical to it. Yet not all homozygotes are the same, there are many different kinds of homozygotes: homozygote beans, homozygote Antirrhinums (of which examples were shown), homozygote dogs, &c. All these different kinds of homozygotes, we may call, with Johannsen, genotypes, because they differ in genetical constitution, and we can then say that the world is populated—with the exception of heterozygotes—by a large number of sharply-defined absolutely stable genotypes. Under such conditions evolution may well seem impossible; fortunately, the behaviour of the heterozygotes shows us that it is very well possible.

A careful study of the descendants of a heterozygote shows us that it segregates in the next or later generations into a number of individuals, part of which are heterozygous, but part of which are homozygous, and that these homozygotes belong to different genotypes. A heterozygote consequently gives birth to a smaller or larger number of different genotypes. By carefully watching therefore a heterozygous individual we *see* the origin of genotypes.

The next step is thus to produce at will these genotypes—originating heterozygotes. This we can do by crossing two individuals belonging to different genotypes.

The next question is: do all heterozygotes obtained by crossing segregate and thus give rise to different genotypes? Until very recently it was believed that only heterozygotes obtained by crossing so-called varieties did

segregate, while crosses between so-called species were said to give a stable offspring. Evidence is rapidly accumulating that this is not true as far as the latter are concerned, that species-hybrids also segregate.

The lecturer then remarked: "I therefore claim that the origin of genotypes by crossing is of much wider application than was formerly supposed, that perhaps it is of universal application. I further claim that the genotypes are the real, long-sought for units of the natural system, and I propose that in future the term species be limited to them, in accordance with the view held by systematists for ages that 'species' is the proper term for the units of the natural system."

He next discussed the question of Progressive Mutation, as illustrated by the work of Prof. H. de Vries upon Œnothera Lamarckiana, and remarked that it had now been shown that this plant was not a pure genotype, and consequently could not serve as a reliable basis for the study of the origin of mutants. Nor did the speaker know of a case in which progressive mutation from a pure genotype had been proved.

Mutation by loss of Factors was also considered, only to be dismissed as hypothetical, and it was submitted that but one thing was proved, viz.: that the real units of the living kingdom are genotypes; that such genotypes can, under proper precautions, be kept pure for an indefinite time; and that there is no certain evidence that they can be changed in any other way than by crossing.

In discussing *the reason of the apparent variability of a species in the Linnean sense*, the author remarked that a Linnean species is a *collection* of independent stable Jordanian species, and if one were to consider, as Darwin did, the former as a unit, the small species contained in it must naturally appear to be deviations of the type—in other words, varieties. If, then, one further sees that between Linnean species which one considers to be units, transitional forms exist, it is perfectly logical to build up a theory that one species can change to another by means of its variability. But he deprecated drawing inferences as to the indefiniteness of specific limits from a bare knowledge that intermediates exist, and he expressed his firm conviction that no transmittable variation exists, but that all apparent variability is due to an original cross.

Finally the author touched upon the origin of species before sexual reproduction took place, but remarked that this is mere speculation.

In conclusion he offered the following deductions:—

(1) If a species is a perfectly stable genotype, reproducing faithfully its kind for ever, unless crossing interferes, all differences between the individuals belonging to a genotype must be non-inheritable modifications.

(2) Inheritable variability does not exist, with the always possible exception of mutation through loss of factors. All that has been described as

variability is the result of vegetative or generative segregation of heterozygotes.

(3) No inheritance of acquired characters occurs. The total of the inheritable factors now found among higher organisms must have been present in the total of the "urorganisms," each of which, however, possessed but a small number.

A discussion followed, in which the following speakers took part: Prof. W. Bateson, Prof. J. B. Farmer, Mr. P. L. de Vilmorin, Dr. R. R. Gates, Prof. F. Keeble, Prof. A. Dendy, Sir Francis Darwin, Dr. A. B. Rendle, Prof. E. W. MacBride, F.R.S. (Visitor), Prof. F. E. Weiss, Major C. C. Hurst, Mr. Arthur W. Sutton, Dr. O. Stapf, Miss E. R. Saunders, and the President, the author briefly replying.

Prof. Bateson rather wished that he had not been asked to open the discussion, for he did not quite know whether to defend Dr. Lotsy against the systematists or to criticise his arguments. Although the paper was a decided step forward, he could not agree with all its conclusions. He had long realised that the Linnean species were often not fixed, and so long as systematists admitted that he did not much mind their giving them names. A name was absolutely necessary—it was to a plant what a pin was to a butterfly, and until one was fixed little could be done with the other. The trouble began as soon as one commenced to shift them about.

Prof. Dendy thought that in counting the trees Dr. Lotsy had lost sight of the wood. He realised that variation often arose through crossing, but he could not admit that the lecturer's theory satisfactorily explained the whole theory of evolution, a conclusion also supported by Prof. McBride.

Sir Francis Darwin said that his father's theory had received some rough treatment since it was propounded, but it was still as good as ever. It reminded him of a rhomboidal figure—Dr. Lotsy had knocked it over on to another facet, but he was not sure that it did not stand all the steadier for its new position.

Major Hurst said that some fifteen years ago he advanced a similar theory to Dr. Lotsy's in *Nature*, but that new facts had caused him to modify his views considerably. He now thought the factors of constitution and productivity, though less obvious, were of more importance than those of form and colour.

Dr. Rendle and Dr. Stapf defended the position of the systematists, and thought that their method of classification was as perfect as our present knowledge admitted. They were, however, always willing to consider new facts which threw light on the inter-relations of organisms.

The President, Professor E. B. Poulton, F.R.S., in briefly commenting on the discussion, said that zoologists appeared to be less worried than botanists regarding the limits of their species, and if the former sometimes overlooked the limits, the animals themselves seldom made such mistakes.

LEAFLESS ORCHIDS.

A NUMBER of leafless epiphytes are found in the tropics of both hemispheres which are very rarely seen in cultivation, and one of them is shown in the annexed figure of a Jamaican Orchid, formerly referred to Angræcum, but now known under the name of Dendrophylax

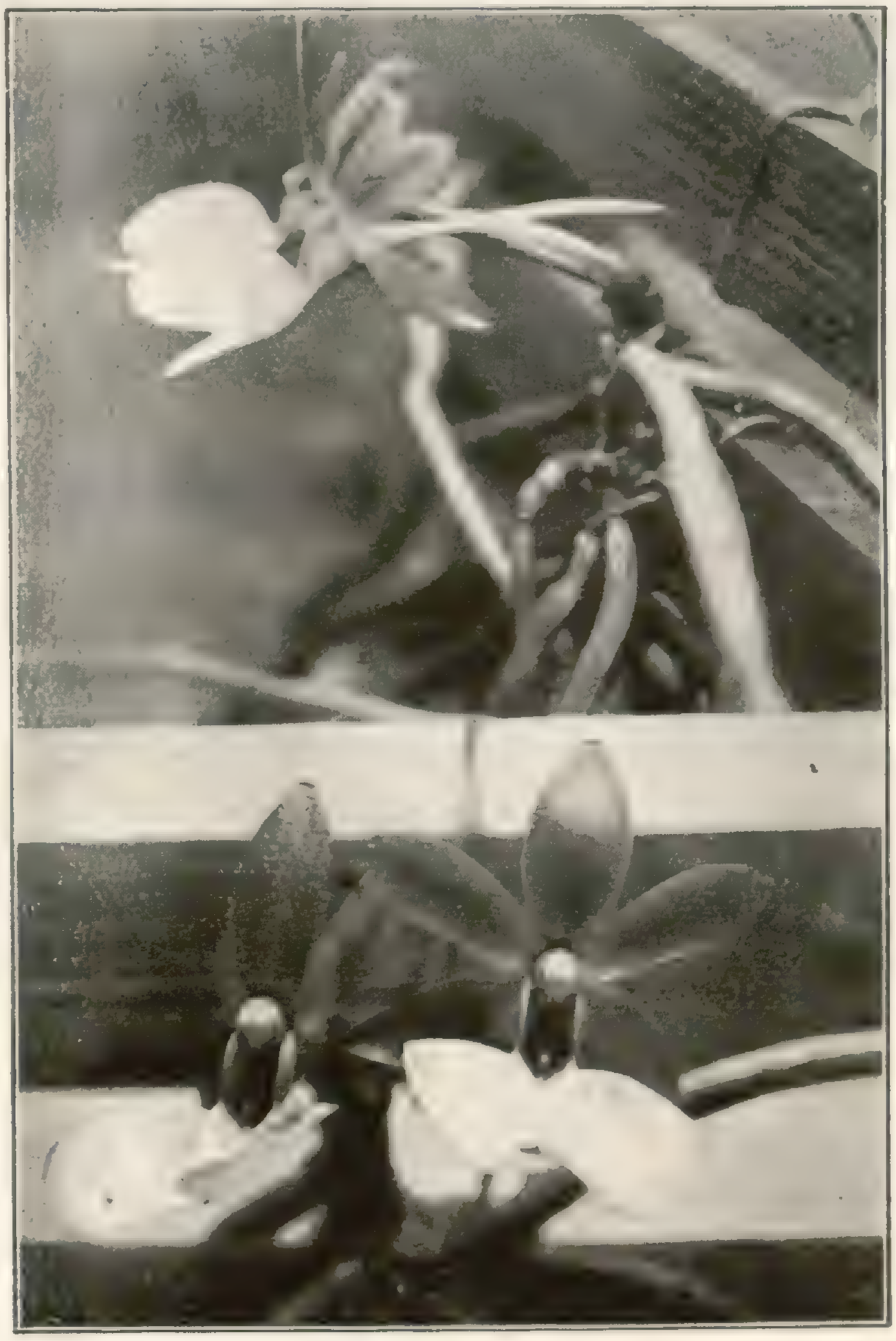


Fig. 13. DENDROPHYLAX FUNALIS.

funalis. The photographs—for two are here combined—represent a front view (below) and side view (above) of a plant bearing two flowers. They were sent to us by Dr. Hans Goldschmidt, Essen-Ruhr, Germany, who received them from Mr. W. Harris, Superintendent of Public Gardens, Kingston, Jamaica. A third photograph shows the whole plant much reduced, with a mass of elongated roots and the raft on which the plant is grown. The species has been known for over a century, having been described as long ago as 1786, under the name of Epidendrum funale, by

Swartz (*Prodr.*, p. 126), and it was figured at t. 4295 of the *Botanical Magazine* as Angræcum funale, from a plant which flowered at Kew in the winter of 1846. This had been sent from Jamaica by Purdie, and it is recorded that "attached to a block of wood, and freely supplied with moisture, it produced its highly-fragrant blossoms in the winter of 1846, and continued some time in blossom." It was also recently in the collection but failed to establish itself, probably owing to a difficulty in meeting its requirements. It is only known from Jamaica, where it grows on trees in several localities, though we have not found a record of the altitude and conditions under which it occurs naturally. The flowers have bright green sepals and petals and a white lip and spur.

DENDROPHYLAX FAWCETTII is a much finer species, and is a native of the Cayman Islands, whence it was sent to Kew by Mr. W. Fawcett, who found it at George Town, Grand Cayman. It flowered at Kew in October, 1888, when it was described (Rolfe in *Gard. Chron.*, 1888, ii. p. 532), as follows: "Imagine a tuft of roots, long, flexuose, cylindrical, and greenish in colour, spreading in all directions from a very short tuft-like caudex, no leaves whatever, flowers two inches in diameter, the large bilobed lip pure white, the lanceolate acute segments of a most delicate greenish white, and a slender pendulous spur seven inches long, and you have the new plant, almost a counterpart of D. funalis."

DENDROPHYLAX LINDENII is a third remarkable species, originally described by Lindley as Angræcum Lindenii (*Gard. Chron.*, 1846, p. 135), from the forests of Cuba, but since found in several localities in Southern Florida. It is markedly different from the two preceding species in having the front of the lip extended in a pair of very long, acuminate, diverging lobes, which Lindley likened to tails. It is quite leafless, and depends on its long chlorophyll-bearing roots for subsistence. These creep over the bark and sometimes reach several feet in length, while the inflorescence is branched and bears several large white Angræcum-like flowers.

CAMPYLOCENTRUM is an allied American genus which has a group of about seven leafless species, extending from Brazil to the West Indies and South Mexico, one of them reaching the peninsula of Florida. The flowers are minute, white or buff, and borne in short racemes. Some of them were formerly included in Angræcum. Probably none of them are in cultivation.

ANGRÆCUM possesses several leafless species, a group of at least six being found in Tropical Africa, one of them extending both to Natal and Madagascar, and another to Madagascar and Mauritius, while two or three additional species occur in Madagascar. One of the Tropical African species (A. Smithii, Rolfe), was formerly in cultivation at Kew. The allied genus Mystacidium has one leafless species, a native of South Africa.

These plants are for the most part reduced to a tuft of much elongated roots, the stem from which the short racemes arise, being nearly obsolete. In Angræcum aphyllum, however, the stem is much elongated, and the very numerous racemes are borne from the nodes—the points which would be normally the axils of the leaves.

TÆNIOPHYLLUM is a large Asiatic genus, allied to Saccolabium, ranging from North India, Ceylon, and Japan, through the Malayan Peninsula and Archipelago and the Philippines, to North Australia and several of the Polynesian Islands. The species now number about fifty, and one of them has been cultivated at Kew, though otherwise they are scarcely known in cultivation. They have numerous green fleshy roots, which creep along the bark, very short or nearly obsolete stems, and short racemes of minute flowers. In a few cases narrow strap-shaped leaves are produced, in reference to which the name was given.

Sarcochilus has a few leafless or nearly leafless species, S. luniferus being a charming little plant which flowered at Kew some years ago, when it was figured at t. 7044 of the *Botanical Magazine*. It is a native of Burma, and was discovered by the Rev. C. Parish. It is practically stemless, and bears racemes of bright yellow flowers, spotted with bright red-brown, and occasionally has a pair of narrow leaves, though the function of nutrition is chiefly carried on by the fleshy chlorophyll-bearing roots. S. usneoides is another Indian species, while S. phyllorhizus occurs as far away as North Queensland.

Doritis tæniale closely resembles a dwarf species of Phalænopsis, and has racemes of rosy flowers. It also is a native of Burma, and flowered at Kew in March, 1886, together with a pure white variety. They were both painted at Kew by Mr. John Day (*Orch. Draw.*, l. t. 7). They were sent from Moulmein with Phalænopsis Parishii, and were supposed to be that until they flowered.

The handsome Phalænopsis Lowii, now rarely seen in cultivation, is said to be deciduous, and there is a Chinese leafless species, namely, P. Wilsonii, Rolfe, which was collected on rocks in Western China at 4500 feet elevation by Mr. E. H. Wilson. It has pretty pink flowers over an inch across, and is not known in cultivation.

Thus we see that leafless Orchids occur in several genera of the great epiphytic subtribe Sarcantheæ, and in each great tropical division of the globe. The condition may be regarded as an extreme adaptation against drought, and one may trace the course of development. In the first place the leaves began to shrivel in the dry season, and the deciduous character was accompanied by a development of chlorophyll in the aërial roots. Finally the roots having taken upon themselves the function of nutrition, the plants ceased to develop leaves. It is almost a romance.

CULTURE OF ODONTOGLOSSUM GRANDE.

FOR amateur growers, and especially for those who exhibit at autumn shows, this Odontoglossum is of great use, being free-flowering and of easy culture. Its spikes of large yellow and chestnut brown blossoms are thrown up well above the foliage, and are very effective.

To keep this plant in a healthy and vigorous condition annual repotting is advisable, which is best done this month, when the new growths have nicely broken away and are ready to derive nourishment from new compost. This should consist of osmunda fibre, oak leaves, and heads of living sphagnum moss, mixing all well together and taking care not to plant too deeply in the pot. After repotting, the plants must be shaded from strong sun, and water be given with caution, until the young roots begin to take hold of the new soil.

When the plants have got over the effects of repotting, the best position for them is on a shelf near the roof glass, where they may get abundance of light and air, and during the summer copious watering every other day will usually be needed, with a light spraying over the leaves morning and evening.

Up to the middle of September light shading will be necessary for a few hours, in the middle of the day, to prevent the sun from scorching the leaves. Keep a sharp look-out for thrip, and if any are detected fumigation must be resorted to.

When finishing their bulbs they will need all the light possible, so as to mature them properly, and a little weak cow manure water about twice a week will help them to throw up strong spikes. Keep a sharp look-out for slugs, which, if unchecked, cause serious havoc among the spikes. As soon as the buds begin to colour discontinue the application of manure water and overhead spraying, and if when in blossom the plants are moved to a cooler and drier house, their flowers will last for several weeks.

After flowering, the plants should be gradually rested, by decreasing the amount of water, until only just sufficient be given to keep the bulbs from shrivelling. A light and airy house, where the temperature does not fall below 50° Fahr., will suit them to perfection, and no attempt should be made to induce them to start into growth again until the spring, as a long and decided rest is of absolute necessity.

In regard to Mr. Ashworth's note on page 362 of the last volume, I may say that I have repeatedly attempted to raise seedlings of this Orchid without success. Often the pollinated flowers have failed to set at all, or else a capsule has formed only to fall off prematurely. At the moment of writing a pod is forming by intercrossing this species with Oncidium tigrinum, but I am not sanguine of success.

C. ALWYN HARRISON.

CALENDAR OF OPERATIONS FOR MARCH.

By T. W. BRISCOE, Late Foreman of Messrs. Veitch's Hybridising Department.

MARCH is usually a busy month for the Orchid grower, especially where a general collection is cultivated. Each division will require more attention in regard to ventilation and damping down, while it will be necessary to lower the blinds on the Cool or Odontoglossum house for a few hours when the sun is strong. The ends and sides of all the houses can be stippled over with a mixture of milk and whiting, and if there is any doubt about its sticking on, a little builders size may be added. At this season extra care is required when admitting air, because the wind is often very cold, although the sun may be shining brightly, a condition which often deceives the unobservant cultivator.

For the present the temperatures should be as follows:—

East Indian or Warm house: Day, 70°; night, 65°.

Cattleya or Intermediate house: Day, 65°; night, 60°.

Odontoglossum or Cool house: Day, 55°-60; night, 55°.

Seedling house (Cattleyas, &c.): Day, 70°; night, 65°.

Seedling house (Odontoglossums, &c.): Day, 65°; night, 60°.

Each division will need damping down twice or thrice each day, so as to maintain a buoyant atmosphere and those desirable growing conditions which an experienced grower can feel directly he enters the house. Every encouragement must be given to the inmates to make strong healthy growth, and there is nothing to equal light, if admitted judiciously, to bring this about. Much care and discretion is, however, essential to secure the best results, and at this period of the year, when we are just emerging from the winter months, it is advisable to lower the blinds rather early in the day, as the tender foliage of some species is easily injured until the plants become accustomed to the increased sunlight. Flower buds will readily respond to its influence, while root action and top-growth will be active where the conditions are right.

SPATHOGLOTTIS.—As these start into growth they should be repotted, if not taken in hand last year, and on account of their terrestrial habit a little fibrous loam and partly decayed oak leaves may be incorporated in the usual compost. Fairly deep pans are often employed as receptacles, and with very good results. A liberal supply of water is needed throughout the growing period, but it should be gradually diminished as the bulbs reach maturity, and entirely withheld for a few weeks during the winter months. Thrip and red spider will sometimes attack the under-surface of the leaves, but if they are sprayed during hot weather these pests are not so troublesome.

CALANTHES.—These are no doubt largely grown in many establishments to supply an uninterrupted succession of flowers during the winter months. The flowering period begins in November with C. vestita rubro-oculata, luteo-oculata, and C. rosea. Then follow C. Veitchii, Harrisii, and other hybrids, with the Regnieri section producing a display about the present time. For the last few weeks the majority have been resting, and now is a good time to purchase any new kinds. With the advent of March signs of life will be apparent, and when the new shoot is about an inch long the repotting must be done. I always like to repot just before root action commences, then there is no fear of injuring the tender roots. All the old exhausted soil and dead roots should be removed, and each pseudobulb must be examined for scale.

Calanthes enjoy a richer and more retentive soil than most Orchids, and it should include three parts of the best fibrous loam, with the remainder made up of partly-decayed oak leaves, chopped sphagnum moss, coarse silver sand, and a sprinkling of finely-crushed crocks. Some cultivators incorporate a little bone meal, or dried cow-manure, which I think desirable when the loam is of poor quality. Good drainage is necessary, and pots six or eight inches in diameter prove a suitable size for five or six bulbs of average dimensions. There are growers who prefer to place the bulbs singly in receptacles of various sizes, a method which has its advantages, but where specimens are needed for the dwelling-house, a pot with several spikes is more useful. When repotting, the soil should be pressed moderately firm and brought to within an inch of the rim.

The orthodox Orchid house is not essential for Calanthe culture, in fact I have seen some grand examples grown in a melon or cucumber house or similar structure, while they are invariably free from the spot disease. After the repotting is completed a temperature of 65° to 70° is necessary, and very little water is needed for the first six weeks, or the tips of the young growths will turn black, and thereby impair the health of the plant for the rest of the season. When the leaves begin to unfold the water supply can be increased, and from then onwards they must never suffer from dryness at the base. Plenty of light is needed, short of scorching the foliage, and the surroundings ought to be kept moist by occasionally damping the stages, &c., while a little top and bottom ventilation will be beneficial whenever the elements warrant the opening of the ventilators. Care must be taken in this to avoid draughts.

DISAS.—Although this is not the proper season for repotting these charming terrestrial Orchids, no harm will accrue if small plants that have filled their pots with roots are placed in others of a larger size. A suitable rooting medium is made up of loam, peat, and sphagnum moss in equal parts, as I have found that they do not thrive so well if osmunda fibre is

employed. The plants will require watering more frequently than hitherto, and a light spraying overhead may be practised whenever the weather is bright. Keep them clean by spraying or dipping in a weak solution of XL-All liquid insecticide directly any thrip is detected. The coolest end of the Odontoglossum house is the best position for Disas, where a top ventilator can be always more or less open. When the division is vaporised the Disas should be removed until the fumes have escaped, as the tips of the leaves are generally injured.

PHAIOCALANTHES are semi-deciduous subjects, and unless given careful treatment they are liable to be attacked with the spot disease, and rot off at the base of the bulb. Proper ventilation, and intelligent handling of the water pot, will usually prevent such a calamity. After the scapes are removed a partial rest is needed in a somewhat dry atmosphere, with only sufficient water to maintain the bulbs in a rigid condition. When they start into growth repot them in a similar mixture to Phaius, and grow on in the same house. The appearance of red-spider and scale insects must be watched for, and, when seen, the foliage ought to be sponged over, especially on the undersides.

ONCIDIUMS constitute a varied group of Orchids which for the most part can be accommodated in the intermediate division. A few notable exceptions, however, embrace O. macranthum, O. superbiens, O. monachicum, and others of this section, which will thrive in the Cool house. Some of them will now be pushing up their flower scapes, and should in consequence be kept well supplied with water, while any repotting must stand over till a later date. Those that are not flowering may be given fresh rooting material, which consists of good peat, osmunda fibre, and sphagnum moss in equal parts. The compost must not be pressed too tight, and for large examples it can be used in a more lumpy condition, so that the roots may enter without any hindrance, and water can pass through quickly. Where the receptacles are large enough for further development, the plants need not be disturbed, unless the soil has become exhausted, when it must be picked out and replaced with new compost, avoiding any injury to the roots. Most of these species have large fleshy roots, and if the lead or growing point happens to be a distance from the surface, it will be advisable to fill up the intervening space with pieces of fibre and sphagnum moss, or the roots should be trained down to the compost to prevent them being eaten by slugs, or broken when moving the plants.

Any other Oncidiums that have started into growth, and are about to root from the base of the new shoot, may be repotted. For smaller growing kinds it is necessary to cut up the fibres rather finer than is required by the more robust species. Among those now showing flower are O. concolor, O. leucochilum, and others, and these must be afforded liberal waterings

until the flowers are fully expanded. Those species with thick fleshy leaves, of which the beautiful O. Lanceanum may be cited as an example, need careful watering at all times, and throughout the growing period a warm moist atmosphere is essential.

CATTLEYAS AND ALLIES.—Many of this family are beginning to root freely from the base of the current pseudobulb, and where necessary the plants may be repotted. It is best to slightly anticipate the appearance of a fresh batch of roots, then there is no fear of injury, and they enter readily into the new compost. For large and fully-grown examples osmunda and AI fibres are generally used, while some growers add a little chopped sphagnum moss, and a sprinkling of finely-crushed crocks. When the operation is completed a copious watering should be given, and if the surroundings are kept moist no more will be needed for several days. The newly-potted plants are arranged in batches, then their requirements can be given proper attention, while the liability of being over-watered is reduced to a minimum. Before placing the plants in their pots all the old useless back pseudobulbs can be removed, four behind each lead or growing point being ample. If the variety is a choice one the back bulbs should be employed for propagating purposes, either by potting them up or laying them in the seed-raising case until the dormant eyes show signs of swelling.

CATTLEYA SEEDLINGS, with those of allied genera, should also receive attention at this period, and every inducement should be given to help them to grow freely, and thus attain flowering size. Those in need of it must be provided with fresh compost and larger receptacles. These should be filled one-third of their depth with drainage, and the rooting medium is made up of osmunda and polypodium fibre and sphagnum moss, in equal parts, the whole being cut up rather finely. A sprinkling of partly decayed oak leaves may be added where the seedlings are not in a very flourishing state. When the weather is bright a light spraying overhead will be beneficial, but at present it ought to be done during the earlier part of the day. A sharp watch should be kept for insect pests, which are capable of doing much damage.

GIFT OF ORCHIDS TO KEW.—We understand that the late Sir Trevor Lawrence, by his will, left all his plants to his wife, but expressed a wish that she would present to the Royal Gardens at Kew such portions of his collection as she might be advised or might consider to be mainly of botanical interest, the matter being left entirely to her decision. We understand that Lady Lawrence has written to Sir David Prain, the Director of Kew Gardens, to say that she has much pleasure in informing him of her intention to carry out Sir Trevor's wishes, and will make the necessary arrangements in due course.—*Gardeners' Chronicle.*

ODONTOGLOSSUM AMABILE VAR. STARLIGHT.

THE accompanying figure represents a very distinct and handsome form of Odontoglossum amabile, which was exhibited by Lt.-Col. Sir

FIG. 14. ODONTOGLOSSUM AMABILE VAR. STARLIGHT.

George L. Holford, K.C.V.O. (gr. Mr. H. G. Alexander), at the Royal International Exhibition, held at the Royal Hospital, Chelsea, in May, 1912. It was included in the fine group which gained the King's Cup, and

bore a compact spike of thirteen finely-shaped flowers, with broad, very undulate segments. The ground colour is white, and the sepals and petals bear a group of brown spots about the centre, while the crest of the lip is surrounded by numerous small spots. Odontoglossum amabile is a hybrid from O. crispum and O. spectabile, and is remarkably variable in the arrangement and colour of the spots, as well as in the shape of the segments. Our figure is taken from a photograph by Mr. F. Waldock, kindly forwarded by the exhibitor.

SOCIETIES.

AT the meeting held on February 10th, the date of the Annual General Meeting, there was a very fine display of Orchids, including a magnificent group from Westonbirt, to which a Gold Medal was awarded. Six other medals, two First-class Certificates, and seven Awards of Merit were also given.

Orchid Committee present:—J. Gurney Fowler, Esq. (in the Chair), and Messrs. J. O'Brien (hon. sec.), Gurney Wilson, E. H. Davidson, W. H. White, Sir Harry J. Veitch, Sir Jeremiah Colman, Bart., R. A. Rolfe, F. Sander, R. G. Thwaites, F. M. Ogilvie, T. Armstrong, C. H. Curtis, W. Cobb, J. Charlesworth, J. Cypher, W. H. Hatcher, J. E. Shill, H. G. Alexander, S. W. Flory, C. Cookson, W. Bolton, C. J. Lucas, and de Barri Crawshay.

Lt.-Col. Sir George L. Holford, K.C.V.O., Westonbirt (gr. Mr. Alexander), staged a magnificent group, to the left of the entrance, composed largely of well-grown Cattleyas, Læliocattleyas, hybrid Odontoglossums, Odontiodas, and Cymbidiums, with many white Lælia anceps bearing about a hundred spikes, and producing a very graceful effect. Cymbidium insigne and its hybrids were in great force, the latter including some fine forms of C. Alexanderi, Gottianum, and the new C. Dryad (see page 95). C. Lowio-grandiflorum with seven spikes, and C. Holfordianum were also very fine. Among numerous fine forms of Cattleya Trianæ Imperator and Mooreana were particularly good, also a cluster of the rich yellow Læliocattleya Ariel, some well-bloomed examples of Sophronitis grandiflora, Sophrocatlælia Marathon, the yellow Brassocattleya Figaro, B.-c. Euterpe and Vesta, Vanda Watsoni with eight spikes, Cypripedium Cyclops, Satyr, Viking, Lucifer, and others too numerous to mention. A Gold Medal was awarded to this excellent group.

E. H. Davidson, Esq., Orchid Dene, Twyford, was awarded a Silver Flora Medal for a beautiful group, including many brilliant Odontiodas, Odontoglossum Ossulstonii, Aireworth, and numerous others, a well-bloomed example of Sophronitis grandiflora, Lycaste Skinneri and var. alba,

some good Masdevallia tovarensis, Læliocattleya Fascinator, the chaste Cattleya Suzanne Hye de Crom, and other good things.

Sir Jeremiah Colman, Bart., Gatton Park, Reigate (gr. Mr. Collier), sent a fine Zygocolax Wiganianus with two spikes, the richly-coloured Lycaste Skinneri hellemensis, Miltonia Bleuana, and a well-bloomed plant of Tainia penangiana.

Baron Bruno Schröder, The Dell, Englefield Green (gr. Mr. Shill), showed the handsome Cattleya Trianæ Goliath, Premier, and The Baron.

De Barri Crawshay, Esq., Rosefield, Sevenoaks (gr. Mr. Stables), showed a good plant of Odontoglossum Boadicea.

H. S. Goodson, Esq., Fairlawn, Putney (gr. Mr. Day), showed Sophrocatlælia Herbert, a well-coloured Læliocattleya Charlesworthii, and a curious greenish Odontoglossum from Peru, possibly a form of O. angustatum, Lindl., which was referred to the Scientific Committee.

Mrs. Thatcher, Manor House, Chew Magna, Somerset, sent a plant of Brassavola glauca having flowers with a purple spot in the throat.

Messrs. Armstrong & Brown, Tunbridge Wells, staged a choice group, including many fine Læliocattleyas, a hybrid from Cymbidium giganteum × insigne, C. Woodhamsianum, Odontioda keighleyensis, a fine Cattleya Trianæ Mrs. de Barri Crawshay, C. Maggie Raphael alba, a specimen Dendrochilum glumaceum, some well-bloomed Odontoglossum crispum, a well-coloured hybrid between Cattleya Percivaliana and Lælia anceps Schrœderæ, Cypripedium Bassano × Fairrieanum, C. Kentore, C. Venus Orchidhurst var., C. Mrs. E. S. Rashleigh (Hera × Bassano), with very large blotches on the dorsal sepal, and other good things (Silver Flora Medal).

Messrs. Charlesworth & Co., Haywards Heath, staged a choice group, including a fine example of Oncidium hybridum, a beautiful Miltonia Bleuana with eight spikes, Dendrobium nobile virginale, a fine Phalænopsis Stuartiana, two fine spikes of Eulophiella Peetersiana, Odontoglossum eximium var. Fascinator, with eleven very richly-coloured flowers, O. crispum Palatine, a model form, with circular, white flowers and very undulate petals, Odontioda Bradshawiæ with four spikes, Brassocattleya Leemanniæ, Brassolælia Veitchii, and others (Silver Flora Medal).

Messrs. Cypher & Sons, Cheltenham, staged a group of choice Cypripediums, conspicuous among them being several good C. Thompsonii, the fine C. Bridgei, and C. Euryades New Hall Hey var., with several good Cattleya Trianæ, Miltonia Bleuana, Phalænopsis Schilleriana, Calanthes, and good examples of Cymbidium insigne, Alexanderi, Gottianum, and Pauwelsii (Silver Flora Medal).

Messrs. Stuart Low & Co., Jarvisbrook, Sussex, staged a showy group, including several Cattleya Trianæ, C. T. alba, C. Percivaliana alba,

Phalænopsis Schilleriana, Læliocattleya bella, Saccolabium bellinum, Sophronitis grandiflora, Oncidium splendidum, Eria convallarioides, Cypripedium aureum virginale, C. a. Hyeanum, and others (Silver Flora Medal).

Messrs. Sander & Sons, St. Albans, staged a choice group, including several promising Odontoglossums (see Records next month), with good forms of Cattleya Trianæ, a dark Dendrobium nobile, Cymbidiums, Odontiodas, Epidendrum polybulbon, Brassocattleyas, a well-bloomed Mormodes tigrinum, and others (Silver Banksian Medal).

Mr. H. Dixon, Spencer Park Nursery, Wandsworth, showed a few good Odontoglossum crispum and O. aurosum (see New Hybrids p. 95).

Mr. W. A. Manda, St. Albans, staged a small group of Cattleya Trianæ, showing much variation in colour.

Messrs. J. & A. McBean, Cooksbridge, sent a few good Odontoglossums and Odontiodas, Cymbidium Gottianum, Masdevallia Veitchiana, and others.

Messrs. Swan & Price, St. Albans, staged a small group of Cypripediums, including C. Sladdenii, Minos Youngii, Swanii, and others.

FIRST-CLASS CERTIFICATES.

CYPRIPEDIUM PYRAMUS (Hera × Mrs. Wm. Mostyn).—A handsome hybrid, having the dorsal sepal very heavily blotched with dark purple on a white ground, somewhat tinged with rose near the margin, and the petals and lip dark mahogany brown. Exhibited by Baron Bruno Schröder.

DENDROBIUM LADY COLMAN (Artemis × Findlayanum).—A noble form, having immense rose-purple flowers, with a very large maroon blotch on the disc. Exhibited by Sir Jeremiah Colman, Bart.

AWARDS OF MERIT.

CATTLEYA TRIANÆ MRS. DE BARRI CRAWSHAY.—A finely-grown example, having broad, rose-pink sepals and petals, and the lip rose-purple in front of the deep yellow disc. Exhibited by Baron Bruno Schröder.

CATTLEYA TRIANÆ MRS. PHILLIPS.—A charming form, having a very broad purple band at the apex of the petals, and a smaller one on the sepals. Exhibited by C. J. Phillips, Esq., The Glebe, Sevenoaks.

CYMBIDIUM GOTTIANUM WESTONBIRT VAR. (eburneum × insigne).—A fine form, having the sepals and petals well flushed with pink, and the lip spotted with purple. Exhibited by Lt.-Col. Sir George L. Holford.

CYMBIDIUM SCHLEGELII SOUTHFIELD VAR. (insigne × Wiganianum).—A large and handsome form, having the flowers tinged with blush pink, and the lip with numerous reddish purple spots. Exhibited by W. Waters Butler, Esq., Southfield, Edgbaston.

ODONTIODA DIANA VAR. GLADYS (C. Nœtzliana × O. amabile).—A very

handsome form, having the flower uniformly dark scarlet in colour, with a yellow crest on the lip. Exhibited by Messrs. J. & A. McBean.

ODONTIODA MARGARET WESTONBIRT VAR. (Odontioda Bradshawiæ × Odontoglossum armainvillierense).—A very fine form, having deep salmon red flowers, with a few light yellow markings, and a rosy margin to the segments. Exhibited by Lt.-Col. Sir George L. Holford.

ODONTONIA LUCILIA (see New Hybrids p. 95).

At the meeting held on February 24th there was again a fine display, and the awards consisted of ten medals, two First-class Certificates, and three Awards of Merit.

Orchid Committee present: Sir Harry J. Veitch (in the Chair), Sir Jeremiah Colman, Bart., and Messrs. J. O'Brien (hon. sec.), F. Sander, R. G. Thwaites, F. J. Hanbury, F. Menteith Ogilvie, T. Armstrong, C. H. Curtis, W. Cobb, A. McBean, J. Charlesworth, J. Cypher, W. H. Hatcher, J. E. Shill, H. G. Alexander, W. P. Bound, A. Dye, E. H. Davidson, S. W. Flory, W. Bolton, Gurney Wilson, H. J. Chapman, de Barri Crawshay, R. A. Rolfe, and S. H. Low.

Lt.-Col. Sir George L. Holford, K.C.V.O., Westonbirt (gr. Mr. Alexander), staged a very fine group, to which a Silver-gilt Medal was awarded, also a Silver Lindley Medal for three magnificent specimens in tubs—Cattleya Trianæ Hydra, with ninety-seven flowers, Cymbidium Lowianum with fifteen fine spikes and 278 flowers, and C. Veitchii with twenty-five spikes and 101 flowers. Other good things were a group of ten plants of Cymbidium Dryad, a fine lot of Læliocattleya Ariel, L.-c. Aureole (L.-c. Truffautiana × C. Iris), and sixteen beautiful varieties of Cattleya Trianæ, forming quite a model exhibit.

De Barri Crawshay, Esq., Rosefield, Sevenoaks (gr. Mr. Stables), sent Odontoglossum Damaris (Rolfeæ × waltonense), O. harvengtense, a good spacimen of O. Boadicea, and the scarlet Odontioda bella.

M. Jules Hye de Crom, Ghent (gr. M. Coen), sent Cypripedium Tracyanum var. maximum, a very fine light-coloured flower.

C. J. Lucas, Esq., Warnham Court, Horsham (gr. Mr. Duncan), sent good examples of Cypripedium Harlequin and C. Robsonii.

Miss Helen F. M. Sidney, Moreton, Holly Spring, Hampstead, showed a well-flowered example of Dendrobium Ainsworthii splendidissimum.

G. Hamilton-Smith, Esq., Seymour Road, Finchley (gr. Mr. Coningsby), sent Cymbidium Cooperi, a very interesting natural hybrid (see p. 94).

Mr. L. Lawrence, Shoreham House Gardens, Shoreham, showed a good specimen of Selenipedium Sedenii candidulum.

Messrs. Charlesworth & Co., Haywards Heath, staged a choice group, including the chaste Phalænopsis Schilleriana alba, Odontonia Langowoyi,

the yellow Brassocatlælia Joan, Sophrocatlælia Electra, the handsome Cattleya Trianæ The Baron, a pink form of C. Suzanne Hye de Crom (Gaskelliana alba × Warneri alba), from a batch producing both white and tinted forms, some good Odontiodas and Odontoglossums, and several plants of the charming Angræcum citratrum in front (Silver Flora Medal).

Messrs. Stuart Low & Co., Jarvisbrook, Sussex, staged a showy group of well-grown plants, including Cattleya Percivalliana Little Gem, with white sepals and petals, some good C. Trianæ, a pretty hybrid between Læliocattleya Ophir and L.-c. Charlesworthii, and some showy Odontiodas, Odontoglossums, and Cypripediums (Silver Flora Medal).

Messrs. Sander & Sons, St. Albans, staged a very fine group, including a varied series of hybrid Odontoglossums of much promise, noteworthy among them being O. St.-Andre (Rio Tinto × armainvillierense) and a handsome O. Rolfeæ × O. Pescatorei. There were also examples of Dendrochilum glumaceum, Phalænopsis amabilis, Renanthera Imschootiana, some good Læliocattleyas, &c. (Silver Flora Medal).

Messrs. Armstrong & Brown, Tunbridge Wells, staged a good group of hybrid Odontoglossums, O. Lambeauianum × excellens and O. illustrissimum × eximium being very promising. There were also Cypripedium Florida (Fowlerianum × glaucophyllum), Cymbidium Iona (insigne × giganteum), Læliocattleya Hypatia, and others (Silver Banksian Medal).

Messrs. Cypher & Sons, Cheltenham, staged a good group of Cypripediums, Phalænopsis Schilleriana and Stuartiana, Epiphronitis Veitchii, several well-flowered Masdevallias, and the brilliant Sophronitis grandiflora in front (Silver Banksian Medal).

Messrs. Flory & Black, Orchid Nursery, Slough, staged a small group, including Odontioda Schrœderi, Graireana, and others, with a few good Odontoglossums and Cypripediums (Bronze Banksian Medal).

Messrs. Hassall & Co., Southgate, staged an interesting little group, including Odontocidium southgatense (see p. 95), some good Cattleya Trianæ, Brassocattleya langleyensis, Odontioda St.-Fuscien, Cypripedium villosum Stanleyi, and Cymbidium insigne (Bronze Banksian Medal).

Messrs. Swan & Price, St. Albans, staged a small group of Cypripediums and Cattleyas, with Oncidium splendidum and a good example of O. Cavendishianum (Bronze Banksian Medal).

Messrs. E. H. Davidson & Co., Orchid Dene, Twyford, sent a few choice things, including Cattleya Loddigesii alba, C. Trianæ Orchid Dene var., Odontoglossum crispum Princess Mary, O. Twyford Gem, a plant of the dwarf O. Œrstedii with eleven flowers, and the brilliant Sophrocattleya warnhamensis.

FIRST-CLASS CERTIFICATES.

CYMBIDIUM ALEXANDERI HAMILTON-SMITH'S VAR. (insigne × Veitchii).—A remarkably fine blush form, with a zone of large crimson blotches round the front of the lip. Exhibited by G. Hamilton-Smith, Esq., Finchley.

ODONTOGLOSSUM COLOSSUS (parentage unrecorded).—A very large and handsome form, heavily blotched with purple-red on a white ground. Exhibited by Baron Bruno Schröder, The Dell, Englefield Green (gr. Mr. Shill).

AWARDS OF MERIT.

CYPRIPEDIUM MOGUL (Mrs. Wm. Mostyn × chrysotoxum).—A handsome hybrid, having an ivory white dorsal sepal with a purple median band, and the lip and petals yellow tinged with brown. Exhibited by Lt.-Col. Sir George L. Holford, K.C.V.O.

LÆLIOCATTLEYA ARIEL (L. Cowanii × C. Dowiana aurea).—A bright and pretty hybrid, bearing a tall spike of copper yellow flowers, with a ruby-red lip. Exhibited by Lt.-Col. Sir George L. Holford.

PHALÆNOPSIS ARIADNE (Aphrodite × Stuartiana).—A beautiful hybrid, having large white flowers of intermediate shape, with some brown spots on the inner halves of the lateral sepals. Exhibited by Messrs. Sander & Sons.

MANCHESTER & NORTH OF ENGLAND ORCHID.

At the meeting held at the Coal Exchange, Manchester, on January 29th the members of Committee present were: Rev. J. Crombleholme (in the Chair), Messrs. R. Ashworth, J. Bamber, J. Cypher, A. G. Ellwood, J. Evans, A. Hanmer, J. Howes, A. J. Keeling, J. Lupton, D. McLeod, W. J. Morgan, W. Shackleton, H. Thorp, Z. A. Ward, and H. Arthur (Secretary).

A Silver-gilt Medal was awarded to R. Ashworth, Esq., Newchurch (gr. Mr. Gilden), for a choice group, in which Odontoglossums were particularly well represented, with Odontioda Bradshawiæ and a few good Cypripediums.

Large Silver Medals were awarded to Wm. Thompson, Esq., Walton Grange (gr. Mr. Howes), and A. Warburton, Esq., Haslingden (gr. Mr. Dalgleish), for choice groups, composed chiefly of Cypripediums and Odontoglossums in variety.

Silver Medals were awarded to Messrs. Sander & Sons, St. Albans, and Messrs. Cypher & Sons, Cheltenham, for good mixed groups.

Interesting exhibits were staged by O. O. Wrigley, Esq., Bury (gr. Mr. Rogers); H. J. Bromielow, Esq., Rann Lea (gr. Mr. Morgan); R. le Doux, Esq., West Derby (gr. Mr. Fletcher); the Hon. Lady Neeld, Grittleton, Wilts (gr. Mr. Pitts); Col. J. Rutherford, Esq., M.P., Blackburn (gr. Mr. Lupton); H. Arthur, Esq., Blackburn; Mr. J. E. Sadler, Newbury; Mr. J. Birchenall, Alderley Edge; Mr. D. McLeod, Manchester; Mr. W.

Shackleton, Great Horton, Bradford; Mr. J. Evans, Congleton, and Messrs. A. J. Keeling & Sons, Bradford.

A Bronze Medal was given to Mr. Morgan, gardener to H. J. Bromielow, Esq., for the culture of Vanda Sanderiana, and Cypripedium Minos Youngii, a Cultural Certificate being also awarded for the former.

FIRST-CLASS CERTIFICATES.

Cypripedium Desdemona (Alcibiades × Mrs. Cary Batten), a large, well-built flower, having the dorsal sepal yellow, with a green base and dark lines, and the petals and lip of good shape, from Wm. Thompson, Esq.

Odontoglossum Jean, a round flower of good substance, the ground colour lemon, and heavily blotched, from R. Ashworth, Esq.

Vanda Sanderiana Rann Lea var., a fine flower, four inches across, and brilliant in colour, from H. J. Bromielow, Esq.

AWARDS OF MERIT.

Cypripedium aure-Euryades (aureum Osiris × Euryades), Golden Glory (Leeanum Corona × aureum antwerpense), and Adrastus Mostyn, all from Wm. Thompson, Esq.

Odontoglossum amabile Mrs. R. le Doux and Mrs. Hattie Bareiss, both from R. le Doux, Esq.

Cypripedium Foscote, from the Hon. Lady Neeld.

Cattleya Trianæ, Beardwood var., from Col. J. Rutherford, M.P.

Cypripedium coloratum, from R. Ashworth, Esq.

At the meeting held on Thursday, February 12th, 1914, the members of Committee present were:—Rev. J. Crombleholme (in the Chair), Messrs. J. Bamber, J. Cypher, A. G. Ellwood, J. Evans, J. Howes, A. J. Keeling, J. Lupton, D. McLeod, W. J. Morgan, C. Parker, W. Shackleton, H. Thorp, W. Thompson, A. Warburton, Z. A. Ward, and H. Arthur (Secretary).

A Silver-gilt Medal was awarded to Messrs. Cypher & Sons, Cheltenham, for a fine mixed group of Cymbidiums, Cypripediums, Lælia anceps, Calanthes, and others.

A Large Silver Medal was awarded to A. Warburton, Esq., Haslingden (gr. Mr. Dalgleish), for a group of choice Odontoglossums, Cypripediums, and others.

Silver Medals were awarded to W. Thompson, Esq., Walton Grange (gr. Mr. Howes), for a small group of choice Odontoglossums and Cypripediums; to Messrs. Sander & Sons, St. Albans, and Messrs. A. J. Keeling & Sons, Bradford, for good mixed groups.

Col. J. Rutherford, M.P., Blackburn (gr. Mr. Lupton), sent a fine example of Cymbidium Gottianum, a Cultural Certificate being awarded to the gardener.

A Special Vote of Thanks was awarded to O. O. Wrigley, Esq., Bury (gr. Mr. Rogers), for a group of magnificently-grown Cypripediums, Odontoglossums, and a few others.

Interesting exhibits were also staged by Col. J. Rutherford, M.P., Blackburn (gr. Mr. Lupton); R. le Doux, Esq., West Derby (gr. Mr. Fletcher); Messrs. Charlesworth & Co., Haywards Heath; Messrs. E. H. Davidson & Co., Twyford, Berks; Mr. J. Evans, Congleton; Mr. W. Shackleton, Great Horton, Bradford, and Mr. D. McLeod, Chorlton-cum-Hardy.

A feature of the meeting was a magnificent display of Paintings of Orchid Flowers, exhibited by Wm. Thompson, Esq., from the gems in his collection.

First-class Certificates.

Odontoglossum L'Empereur (parentage unknown), a magnificent flower of good shape and substance, and solid bluish purple colour; one of the best yet seen (a Silver Medal was also awarded), from W. R. Lee, Esq., Plumpton Hall (gr. Mr. Branch).

Odontoglossum crispum Palatine, one of the finest white crispums seen in the north, of almost perfect shape, from Wm. Thompson, Esq.

Odontoglossum Countess of Sefton (parentage unknown), a large, well-set flower, heavily blotched, from R. le Doux, Esq., West Derby (gr. Mr. Fletcher).

Cattleya Susanne Hye grandiflora, a very large variety, from Messrs. E. H. Davidson & Co.

Awards of Merit.

Odontoglossum Desdemona, illustrissimum, Mrs. McVittie, eximium Walton Grange var., Bonar Law, and crispum aureolum, all from Wm. Thompson, Esq.

Odontoglossum amabile var. Daphne (crispo-Harryanum × crispum), and Odontioda Madeline (Og. crispum × Oda. Charlesworthii), both from W. R. Lee, Esq.

Cattleya Trianæ Enimes, from Col. J. Rutherford.

Cypripedium Griffin (Mrs. Mostyn × Archimedes), from Mr. J. Evans.

Orchids at Home.—Orchids increase and multiply without the assistance of man in their own native habitats. Nature supplies all their requirements; the warmth, the rains, and the dews. If these wants were not provided for the plants would cease to exist, but these being supplied naturally we shall always have Orchids flourishing and increasing, for they drop their seeds when ripe, and these fall and germinate where they get nourishment, according to the various seasons.—B.S.W. in *Orchid Album*.

THE AMATEUR'S COLLECTION.

By C. ALWYN HARRISON.

FOR amateur, as well as for professional growers this month is most trying, for the days become brighter and warmer, thus necessitating increased ventilation, yet cold winds are very prevalent, and hence too much air cannot be given. Much must therefore be left to the good judgment of the cultivator, but a few general hints can be given. The bottom ventilators of the Intermediate house can usually be opened about ten a.m., if the thermometer is above 63° Fahr., but if a cold and biting wind is blowing those on the leeward side of the house must only be opened. If the sun is bright, a little top air can usually be admitted with safety about the middle of the day, but the ventilators should be closed as soon as the thermometer registers below 65° Fahr. In ventilating houses correctly, the main secret of success is to admit enough air to keep the internal atmosphere fresh and buoyant, and to assist in maintaining as far as is possible a regular and even temperature.

For this and the following month a temperature of 60° to 65° Fahr. by day and 58° to 63° Fahr. by night should be regarded as the correct degrees of warmth to be maintained by fire heat, though in the day time, with sun, the thermometer will probably run up to 70°. With this increased amount of warmth damping down must be performed twice daily, in the morning and again about 4.30 in the afternoon, and the growing and flowering plants will probably need likewise a slight increase in respect to the amount of water afforded.

Any Cypripediums not yet potted, if in need of it, can now be overhauled, as advised at page 60, a light shading, however, being given to enable them to start more quickly in their new soil.

Some of the winter-flowing Cattleyas, such as Percivaliana, Trianæ or any of the numerous hybrids can now be overhauled, and this operation must be carefully performed. Remove each plant from the old pot, shake off crocks and soil, then cut cleanly away all dead roots and back bulbs, leaving three only to support each lead. Then fill a fresh pot half full of clean broken crocks and on these set the plant, rather to one side, so as to allow room for the new growth. Then fill up to within half-an-inch of the rim of the pot with soil, pressing it round the roots firmly, and being cautious not to bury the rhizome of the plant. This should be level with the pot's rim. On the surface a few living heads of sphagnum moss can be lightly inserted, but I am not an advocate of placing a layer of moss all over the soil, as this prevents one ascertaining at a glance in what condition the compost is, and to this cause can be attributed many of the

errors of watering. In potting Cattleyas use a mixture of A1 fibre and osmunda, well chopped and slightly damp.

Lælia anceps can now also receive like attention, only for this plant I prefer the Orchid pans to pots, as it is shallow rooting.

Among the flowering plants some of the earliest Dendrobiums will be making a grand display, and for decorative purposes they are so useful that one wonders why they have been neglected of late in our great collections. Imported pieces can now be obtained and grown on, as described in a separate article (p. 93), and there are some beautiful hybrids.

Vanda cœrulea will now be making a fresh start after its winter rest, and water will probably be needed every third day. Remove the old moss and replace by fresh, and any plants that have become leggy should be cut and lowered in the pots, using a little fine-grade osmunda amongst the bottom roots. If any plants are removed from their pots, it will be well to thoroughly clean them with some approved insecticide, as they are subject to scale and mealy bug, which is troublesome to eradicate at any other time.

The above remarks apply with equal force to Renanthera Imschootiana, one of the most brilliant Orchids we have, and those who exhibit at summer shows know well its value, its long spikes of scarlet blooms shaded with yellow being very attractive. In the compost of this plant use a mixture of half osmunda and half green sphagnum moss.

One word of advice to beginners. Never use sphagnum moss which is yellow and dead in the potting compost, as it is of no use to the plant; it merely decays and sours the other ingredients. Heads of green living moss must alone be used.

SUGGESTED ADDITION.

BRASSOCATTLEYA LEEMANNIÆ.—By the combination of Cattleya Dowiana aurea and Brassavola Digbyana, a hybrid of great beauty has been produced, and, although it cannot yet be procured at a low price, is thoroughly worth any additional cost, as it is undoubtedly one of the triumphs of the hybridist's art. The flowers are of good size, the sepals and petals yellow, and the lip of similar colouring, more or less veined with red, and possessing a beautifully fringed edge. It is a good grower, and requires at all times a light position, while during the winter months it appreciates the extra warmth of the warmest part of the house. It is undoubtedly one of the finest of the very handsome Brassavola Digbyana crosses, and inherits the good qualities of both parents.

CHONDRORHYNCHA BICOLOR.—This interesting species has at last appeared in cultivation, a plant lately sent from Costa Rica by Mr. E. Lankester being in flower at Kew. The species was originally described

from a dried specimen sent from Costa Rica by the late Richard Pfau (Rolfe in *Kew Bull.*, 1894, p. 393). The leaves are generally over a foot long, and the single-flowered scapes about three inches long. The flowers are about two inches across, and greenish white, with a dark purple blotch on the disc of the lip, some similar markings at the base, and a few purple dots at the base of the column. The genus is closely allied to Warscewiczella.—R.A.R.

THE LATE SIR TREVOR LAWRENCE.

AT the 110th Annual General Meeting of the Royal Horticultural Society held on February 10th, Sir Harry J. Veitch, who presided, said: Since last we met at the Annual Meeting you are aware of the very grevious loss that the Society sustained in the death of our late President. It was moved at the last Council Meeting, and seconded and carried unanimously, that we should ask at the commencement of our meeting to-day that every Fellow present should rise and receive in silence the following resolution.

The whole audience then rose, and the Chairman read the resolution :—

"The Fellows of the Royal Horticultural Society in Annual Meeting assembled this 10th day of February, 1914, desire to express their great regret at the death of their late President, Sir Trevor Lawrence, Baronet, K.C.V.O., V.M.H., &c.

"They wish also to put on record their profound appreciation

"(1) Of the most eminent services rendered by Sir Trevor to the Society during the very difficult days which beset the commencement of his Presidency in 1885 and the years that followed ; and also

"(2) Of the patience which he showed during the gradual building up again of the Society during the middle period of his office ; and, lastly,

"(3) Of the tact and wisdom with which he directed the Society's affairs during the later years of its prosperity—a prosperity due in no small degree to the personality of its President.

"It was Proposed by Sir Harry Veitch, V.M.H., and Seconded by J. Gurney Fowler, Esq., Treasurer, and carried in silence, all upstanding, 'That the above Resolution be entered in the Minute Book of the Society, published in the *Journal* and communicated to Lady Lawrence and to Sir William Lawrence, together with the address which had been prepared by the Council for presentation to Sir Trevor, but was delayed by his illness and death.'"

The Chairman then alluded to Sir Trevor's long and faithful services to the Society and to horticulture in general, and remarked: "Sir Trevor, as we all know, was a great lover of flowers. We knew him, perhaps, best

as as cultivator of Orchids. He had, without doubt, the finest collection of Orchids, as a collection, to be found in Europe, because he not only bought the more showy kinds, but added to his collection everything he could get that was distinct and beautiful. It was a pleasure to go with him into his houses, and see how he could admire a plant, however diminutive, because of its intrinsic value to him as an amateur. We knew him also as an exhibitor of other kinds of plants and fruits. He was also a keen and enthusiastic cultivator of vegetables. We have lost our President, but his memory will be green for us for many years. I am glad to think that we have upstairs the portrait, painted a year or two since, which will be a reminder to generations to come of what Sir Trevor was to this Society. We also have what is called the Lawrence Medal, which is awarded to the exhibitor who shows the finest collection during the whole year, and that also will help to perpetuate the memory of our dearly-beloved President.

IMPORTED DENDROBIUMS.

AT this season of the year many cases of imported Dendrobiums arrive in this country, and a good opportunity is thus afforded of adding to one's collection. To keep certain Dendrobiums profitably for any length of time it is necessary to renew the stock every three or four years, and growers know well that it is in their first year after importation that they give the best display, hence a few words on the method of re-establishing them may be of interest.

Upon receipt of the plants, look them over carefully, cutting away any dead roots and decayed pseudobulbs. Then lay them out singly on the staging of a house in which the temperature does not fall below 50° Fahr. A moist atmosphere must be maintained in their vicinity, and they should be shaded from bright sun-light, but do not apply water to them direct.

After the lapse of a few weeks the bulbs will begin to plump up and emit a few roots, and immediately this sign of activity is observed the plants should be potted, using pots just large enough to accommodate each. No compost should be used at first, the plants being simply potted in broken crocks, and made very firm by sticks deeply embedded in the crocks. A little water may now be given on bright days, and a syringing every morning and evening will assist healthy development.

When growth gets a little further advanced remove some of the top-most crocks and replace with compost, which should consist of osmunda fibre and sphagnum moss in equal proportions. The subsequent treatment should be as advised for the established plants.

C. ALWYN HARRISON.

CYPRIPEDIUMS FROM BRIDGE HALL, BURY.

FLOWERS of several remarkably well-grown Cypripediums are sent from the collection of O. O. Wrigley, Esq., Bridge Hall, Bury, by Mr. Rogers, which demonstrate their utility as winter-blooming plants. C. Beryl is a well-known handsome flower, in which the characters of C. Beeckmanii and C. Mrs. Wm. Mostyn are combined. The centre of the dorsal sepal is emerald green, with numerous almost black blotches, and between this and the white margin are lines of small dots, while the lip and petals are villosum-like, the latter being over 2½ inches broad. C. Vandyck var. Invincible (M. de Curte × hirsutissimum) is a very fine variety, having the dorsal sepal green, very closely and regularly spotted with dark brown and margined with white, while the petals are very broad, purple at the apex, and very undulate and spotted below. C. Troilus var. Cravenianum is remarkably fine, and recalls the Harefield Hall variety of C. insigne in the numerous very large spots of the dorsal sepal. Being descended from C. insigne and C. nitens, these two are forms of the earlier C. Romulus. C. keighleyense (Arthurianum × nitens) is a good thing, having a broad dorsal sepal, and the numerous spots arranged more or less in lines, as in the former parent, and the petals and lip nitens-like. C. Lucy (Sallieri virens × Euryades Low's var.) has numerous black markings on the green dorsal sepal, and the petals and lip have also much of the Boxallii character. A stray seedling sent may well be a rather lighter form of the same. C. Mrs. Harry Bruce and a seedling from C. Sallieri × Thompsonii will both be forms of C. illustre, and have a green dorsal sepal, with brown suffusion and markings in the centre, and much of the villosum character elsewhere. C. villosum Mrs. Cary Batten is a very attractive flower, with shining brown sepals and petals, while the dorsal sepal has numerous brown lines, more or less confluent into a broad central disc. Lastly, there are attractive hybrids of C. exul, C. villexul Cypher's var. being a very bright and attractive form, while C. Measuresianum (Amesianum) × exul is rather smaller, and shows much of the exul character, with hardly a trace of C. venustum. The flowers are splendidly developed, and were evidently cut from strong, well-grown plants, for which the Bridge Hall collectionis so famous.

CYMBIDIUM COOPERI.—A handsome natural hybrid from Cymbidium insigne and C. Schrœderi was exhibited at the R.H.S. meeting held on February 24th last by G. Hamilton-Smith, Esq., Finchley (gr. Mr. Coningsby). It was imported by Messrs. Sander & Sons from Annam with its two parents, and most resembles C. insigne in habit, having a tall erect spike about four feet high, bearing 23 flowers. They are rather smaller

than C. Insigne, and have narrower petals. The colour may be described as light brownish pink, with darker lines, and the lip pale yellow, with numerous red-brown spots. It is a very interesting addition to the genus. Flowers have been kindly sent by the exhibitor. R.A.R.

NEW HYBRIDS.

CYMBIDIUM DRYAD (insigne × Parishii Sanderæ).—A large and beautiful hybrid of intermediate character, having blush-white sepals and petals, and numerous large red-purple spots on the lip. Exhibited by Lt.-Col. Sir George L. Holford, Westonbirt (gr. Mr. Alexander), R.H.S., Feb. 10th, 1914.

ODONTOGLOSSUM AUROSUM (cirrhosum × excellens).—A striking hybrid, with acuminate segments, but much broader than O. cirrhosum, and the colour bright yellow, with numerous red-brown spots. Exhibited by Mr. H. Dixon, Spencer Park Nursery, Wandsworth, R.H.S., Feb. 10th, 1914.

ODONTONIA LUCILIA (O. cirrhosum × M. spectabilis Moreliana.—A large and handsome hybrid, most like the latter in general character, but with more acuminate segments, and the colour rosy purple, with a number of dark purple blotches, and the lip and base of the petals much paler. Exhibited by Messrs. Charlesworth & Co., Haywards Heath, A.M., R.H.S., Feb. 10th, 1914.

ODONTOCIDIUM SOUTHGATENSE (Odontoglossum Edwardii × Oncidium macranthum).—A curious hybrid with flowers of intermediate shape, the sepals and petals broad, and deep purple in colour, and the ovate lip rose with a yellow crest. Exhibited by Messrs. Hassall & Co., Southgate, R.H.S., Feb. 24th, 1914.

ORCHID NOTES AND NEWS.

TWO meetings of the Royal Horticultural Society will be held at the Royal Horticultural Hall, Vincent Square, Westminster, during March, on the 10th and 24th, when the Orchid Committee will meet at the usual hour, 12 o'clock noon. The afternoon lecture on the former date is by the Rev. G. Henslow, M.A., M.V.H., on Adaptive Degradations, the cause of many cases of Evolution among plants. The fortnightly shows are in future to remain open until seven p.m. during the summer.

The Manchester and North of England Orchid Society will hold meetings at the Coal Exchange, Manchester, on March 12th and 26th. The Orchid Committee meets at noon, and exhibits are open to inspection of members and the public from 1 to 4 p.m.

ORCHID PORTRAITS.

THE object of this article has been to collect the scattered Orchid figures appearing in horticultural journals, and by means of our annual Index these can be traced for the last twenty-one years, forming an Index Iconum Orchidearum, on the lines of Pritzel's work which the R.H.S. proposes to republish when sufficient funds are in hand. But the omission of special Orchid works, including our own, renders the list incomplete, so that, if space permits, we propose to include the more important figures in future, limiting the omission to those of which numerous figures already exist.

BRASSOCATTLEYA CLIFTONI MAGNIFICA.—*Journ. Hort.*, 1914, i. p. 120, fig.

CATTLEYA PERCIVALIANA ALBA LADY HOLFORD.—*O.W.*, iv. p. 101, fig.

CATTLEYA TRIANÆ.—*Orch. World*, iv. p. 107, fig.

CATTLEYA TRIANÆ MRS. PHILLIPS.—*G.C.*, 1914, i. p. 136, fig. 62.

CIRRHOPETALUM MASTERSIANUM.—*G.C.*, 1914, i. p. 122, fig, 55.

CŒLOGYNE DAYANA.—*Orch. World*, iv. p. 108, fig.

CYMBIDIUM ALEXANDERI HAMILTON-SMITH'S VAR.—*Gard. Chron.*, 1914, i. p. 153, fig. 70.

CYPRIPEDIUM BELLATULUM.—*Orch. World*, iv. p. 103, fig.

CYPRIPEDIUM DESDEMONA.—*Gard. Mag.*, 1914, p. 85, fig.; *Gard. Chron.*, 1914, i. p. 77, fig. 39; *Garden*, 1914, p. 72, fig.

CYPRIPEDIUM PYRAMUS.—*G.C.*, 1914, i. pp. 114, 115, fig. 52.

CYPRIPEDIUM PYRAMUS VAR. GARNET.—*Gard. Mag.*, 1914, p. 126, fig.

DENDROBIUM RUBENS.—*Journ. Hort.*, 1914, i. p. 163, fig.

LÆLIOCATTLEYA ARIEL.—*Gard. Mag.*, 1914, p. 168, fig.

ODONTIODA SIBYL.—*Gard. Mag.*, 1914, pp. 105, 108, fig.

ODONTOGLOSSUM AMABILE ASHLANDS' VAR.—*G.C.*, 1914, i. p. 69, fig. 36.

ODONTOGLOSSUM CANARY.—*Gard. Mag.*, 1914, p. 94, fig.

ODONTOGLOSSUM CLEOPATRA ROSEFIELD VAR.—*O.W.*, iv. p. 102, fig.

ODONTOGLOSSUM MIRABEAU.—*Orch. World*, iv. p. 102, fig.

ODONTOGLOSSUM SANDHURSTIANUM.—*G.C.*, 1914, i. pp. 76, 77, fig. 38.

VANDA LOWII VAR. LE MOINIERII.—*Rev. H. Belge.*, 1914, pp. 28, 29, fig.

ANSWERS TO CORRESPONDENTS.

E.S.W.—The brownish green growths are probably flower spikes; if so they will quickly begin to elongate.

Enquirer.—The stout growths on the Cattlryas containing little grubs are due to the Cattleya fly, and must be removed before the fly matures and lays more eggs.

M.J P.—Many thanks; we will report next month.

Received.—E.R., A.C.. R.G.T., F.W.T., W.C.S., T.C., H.G.A.

We have received from the Agricultural and Horticultural Association Ltd., 92, Long Acre, London, W.C., a copy of One & All Gardening for 1914, a well printed and illustrated number, price 2d.

VOL. XXII. APRIL, 1914. No. 256.

THE ORCHID REVIEW

Edited by R. ALLEN ROLFE, A.L.S.

CONTENTS:

	PAGE
Amateur's Collection	122
Answers to Correspondents ...	128
Calendar of Operations for April ...	119
Epidendrum O'Brienianum : another Mendelian experiment	108
New Hybrids	125
Nomenclature of Hybrids	101
Odontioda Latona var. Pearl ...	105
Odontioda Queen Mary	113
Odontiodas, variation in secondary hybrids	106
Odontoglossum crispum with anther-bearing petals and lip	99
Ophrys Grampinii	100
Orchid Notes and News	127
Orchid Portraits	128
Orchids at Cheltenham	123
Orchids at Kew seventy years ago...	100
Orchids flowered at Kew in 1913 ...	126
Orchids in season	126
Our Note Book	97
Pleione pogonioides	108
Slugs and Woodlice	128
Societies	114
Manchester and North of England Orchid	118
Royal Horticultural	114
ILLUSTRATIONS.	
Odontioda Latona var. Pearl ...	105
Odontioda Queen Mary	113

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The Orchid Review

VOL. XXII. APRIL, 1914. NO. 256.

OUR NOTE BOOK.

A QUESTION has been raised in the *Gardeners' Chronicle* as to the way hybrids that have been re-crossed with one of their parents are to be named. Speaking of some hybrid Odontoglossums exhibited by Messrs. Sander & Sons at the R.H.S. meeting held on February 28th last, we read:—"A finely-formed flower (Rolfeæ × Pescatorei) is a great improvement on O. Rolfeæ (Pescatorei × Harryanum), but it ought to be known by that name, as no new element is introduced except in degree" *(G.C.*, 1914, i. p. 157). It is perhaps a debateable point, but we hardly think that the full effect of such a suggestion can have been thought out. There are scores of such hybrids, and as far as our observation goes they are generally distinct. To take a parallel case. O. crispum has been crossed with O. Harryanum, yielding O. spectabile, which re-crossed with O. crispum gives O. amabile; and this again with O. crispum produces O. Jasper, yet all of them are distinct and their forms recognisable.

———

Long ago Cypripedium (Selenipedium) Schlimii was crossed with C. longifolium, yielding C. Sedenii, and this was re-combined with both parents, yielding two perfectly distinct hybrids, which have long been known in gardens under the names of C. calurum and C. cardinale. The latter was again crossed with C. Schlimii, yielding a hybrid which was called C. Cardinal Schlim, not because there was any Cardinal of that name but just to indicate its parentage. We have seen it, but do not remember how far it could be called distinct. When hybrids are fertile it seems to us that it would be possible to connect quite distinct species by a series of intermediate links; and this is being done, to cite an example, in the case of Odontoglossum crispum, but we should not propose to bring them all under one name because no new element is introduced, though it may become unavoidable when they can no longer be distinguished. In practise the case is generally not so simple, for much of the linking up that is being done is with hybrids that introduce a third or a fourth species, giving hybrids

of multiple origin that will give plenty of trouble to students of nomenclature in the future.

A correspondent calls attention to the large number of hybrids of unrecorded parentage that are now being exhibited, and some of them certificated, and asks how they are to be dealt with in the records, for in course of time some of them will appear as parents and it will not then be possible to ignore them, even though they may be omitted now. The case is not an easy one, but we are inclined to think that some of the difficulties will disappear if the attempt be made to overcome them. Some of these plants are stray seedlings, and will in time be identified with others of the same batch, whose parents are known. In other cases the record has been lost, but in all probability the parentage will be proved by subsequent crosses, in which case it will be possible to fit them into their proper places. There would then be no need to ignore them. At the worst they could be referred to the hybrids they most resemble, as has already been done in a good many cases. Something of this kind has to be done with natural hybrids, though the problem is somewhat simplified by the limited number of species which grow together, and by the fact that the importations in which they appear can generally be ascertained. In both it is a question of tracing the parentage by the characters presented by the hybrids. It is here that the difficulty of dealing with complex hybrids is most felt, for if the presence of certain species can be traced there is always the complication that similar results may be obtained by different methods of crossing, and the wide range of variation seen in batches of complex hybrids out of the same seed-pod is enough to shake one's confidence in this method o analysis. Still, no other is possible, and there is no need to ignore it because it is not an infallible guide in all cases.

In this connection it may be mentioned that five remarkable cases of variation among Odontioda seedlings from the same batch, raised by Messrs. Charlesworth & Co., are described on another page, and that we have at last a white Odontioda,—at all events so far as the ground colour is concerned,—namely O. Latona var. Pearl, which is figured at page 105. It recalls the case of Odontioda Blushing-Bride, which appeared with M. Ch. Vuylsteke, though in that there is a distinct trace of pink in the flower. And there are cases of reversion towards the original Cochlioda Nœtzliana among forms of Odontioda Chantecleer. Other surprises may be expected in the future.

An article on Mendelism and the Plant Breeder appears in a recent issue of *The Field*, which contains advice that Orchidists may care to know

about, though whether they will follow it is another matter. "If you have a number of plants which look all alike with respect to a certain character —say that of a spotless white flower—and if this character be one which you have striven to produce and wish to perpetuate, do not treat the plants as a mob—the writer seems to imply that you have been doing this—"treat them as individuals. Save seeds from plants which have been self-fertilised; keep and sow the seed separately from each plant, raise a dozen or more from each of these families. If they all come true to whiteness your additional labour has been wasted; but if only some come true you have the satisfaction of knowing that you have spared yourself several tedious years' work in 'selection.'" And the writer adds: "Not a little of the selection that goes on in nurseries is nothing but an endeavour to get chance to do more slowly what the breeder *may* (the italics are his) be able to do swiftly for himself.

This advice is hardly necessary in the case of the Orchid breeder, who certainly treats his plants individually in the matter of crossing, and what he chiefly wants to find out is how to obtain the qualities that he desires to perpetuate without introducing the undesirable ones also present in the parents that he uses. It is here that Mendelism fails him. In short, there is no royal road to success. "If you seek to combine two different characters possessed by two individuals," the writer continues, "and if both characters fail to appear in the first generation, you have good reason to hope to get them back in the second." This is called the "Mendelian paradox," and the breeder will doubtless make a note of it. We hope he will now make a few more experiments in self-fertilisation, though we confess it is for a somewhat different reason.

Odontoglossum crispum with anther-bearing petals and lip.—A very remarkable if not absolutely unique peloria of Odontoglossum crispum is sent by Messrs. Charlesworth & Co., Haywards Heath. It is of the Lady Jane type, and the spike bears eleven not fully developed flowers, but the remarkable thing is that all the petals and lips bear an additional anther, or at all events a pair of pollinia, for all are borne in a pair of small parallel sacs close to the apex. None of them have the stipes and gland, showing that the supernumerary organs belong entirely to the staminal whorl. Again, the column is normal, with its pair of wings and the normal anther and pollinarium. The petals, as already remarked, are of the Lady Jane type, und bear a zone of elongated brown blotches on the upper half, while the sepals are generally unblotched. The lip is also dwarfed, and bears the usual crest, the additional anther being placed in front of this. It will be interesting to see what the next flowers are like. R.A.R.

OPHRYS GRAMPINII.

THE flowering of an interesting hybrid Ophrys, raised by M. Fernand Denis, Balaruc-les-Bains, Herault, France, from O. tenthredinifera crossed with the pollen of O. aranifera, was recorded two years ago (*O.R.*, xx. p. 199). It is believed to have been the first batch of hybrid Ophryses obtained artificially. M. Denis now writes that he has over forty seedlings in flower or bud, and he sends the spikes of five of them, which prove extremely interesting, for they confirm the parentage of a wild hybrid which has been recorded from three localities in Italy, under the names of O. Grampinii, Cortesi, and O. etrusca, Asch. & Grabn. The examples sent are quite intermediate between the parents, but show a certain amount of variation between themselves. O. aranifera, it may be remarked, has green sepals and petals, and a dark brown lip with a pale, almost H-shaped marking on the disc, while O. tenthredinifera has large rose-purple flowers, with a broad lip, brown at the base, with a few pale markings, and yellowish green at the margin. The hybrids have greenish sepals and petals with a slight rosy tinge, and the lip is suffused with light brown in three cases, and darker in the other two, with much variation in the markings on the disc. In one case there is a marked difference in the shape and markings between two flowers on the same stem. We congratulate M. Denis on the success of his experiment, and hope that others will be made, for there are many natural hybrids in this charming little genus. Camus records as many as eighteen in his recent Monograph of the Orchids of Europe, and two or three of them are British, including O. hybrida, Pokorny, which was figured at page 233 of our thirteenth volume, together with its two parents, O. aranifera and O. muscifera. It may be added that no fewer than eleven of these eighteen hybrids are said to have O. aranifera as one parent.

R.A.R.

ORCHIDS AT KEW SEVENTY YEARS AGO.—The last issue of the *Kew Bulletin* states that a manuscript list of Stove and Greenhouse Plants in the Royal Botanic Gardens, Kew, by Alexander Smith, son of John Smith, senior, for many years Curator of the Gardens, has been presented by Mr. J. R. Jackson, formerly Curator of the Museums. It affords an interesting glimpse of the Orchid collection at that period, though the species are not enumerated in detail. There is, however, a reference to a "special list" of 815 species, which is said to have included a large number of inconspicuous kinds obtained from the famous Loddiges, and thus it will appear that the collection has long been remarkable for the large number of species represented in it.

NOMENCLATURE OF HYBRIDS.

SOME time ago we promised to deal with hybrid nomenclature from the historical standpoint, and the chief difficulty is that Orchid hybridisation is a comparatively modern development, so that we must travel beyond the bounds of Orchidology for a few early illustrations.

The Laws of Botanical Nomenclature are supposed to date from the International Botanical Congress held at Paris in 1867, but so far as hybrids are concerned they scarcely did more than confirm rules drawn up thirty years earlier by one of the pioneers of plant hybridisation, Dean Herbert, who was also a systematist of no mean capacity. In studying the Amaryllideæ Herbert found that in certain genera the hybrids outnumbered the species, largely owing to the practise of giving a separate name to every seedling that possessed distinguishing characters, without regard to its origin, a custom which he described as very objectionable, and one that the writers of all botanical works should set their faces sternly against. In the case of Hippeastrum he showed that out of a total of 105 names enumerated by Sweet no fewer than eighty were hybrids, and many of these of similar origin. He then drew up a list, showing thirty-one distinct combinations (one of which had not yet flowered), and of these seventeen only were primary hybrids.

Herbert's Rules of Nomenclature were drawn up in rather discursive form, but may be summarised as follows :—

(1) All hybrids between forms of the same two species (including reverse crosses) were considered as forms of the same hybrid.

(2) An alternative set of names was admitted, (a) a single name, limited to the genitive of a personal name or the place where a hybrid was raised, and (b) a "descriptive double name," including the names of the parents, that of the male parent being placed first, with the proviso, however, that all reverse crosses should be included under the original name. (Example Hippeastrum Johnsonii or H. regio-vittatum).

(3) Any distinct varieties were to be distinguished by the addition of varietal "florists' names, such as Juno, Ceres, Catillus, Napoleon, Alompra, Sigismunda, &c.," these, however, "deserving no place in a botanical arrangement, belonging properly to the catalogues of cultivators."

Adjectival names for hybrids were rejected by Herbert, these being expressly reserved for the natural species, but in other respects his system was in agreement with the modern one of giving a formula and a specific name, with additional varietal names as necessary, for what he called the "descriptive double name" simply indicated the two parents, whether species or hybrids—and in four cases both parents were themselves hybrids.

His method of using genitive names only for hybrids, however, soon proved unworkable.

There is little to be said about any earlier method. The system of indicating the parentage in a double name soon broke down, being only possible in the case of primary hybrids, and even then it is sometimes too long. Both objections are illustrated in a single example from Herbert. Hippeastrum Donnii or "Hookeri-Haylocki" is the product of crossing H. solandrifloro-bulbulosum with H. Grahami-vittatum; and even then it is necessary to explain that H. Grahami is from H. vittatum × Johnsoni, and H. Johnsoni from H. vittatum × regium, before one realises that H. Donnii is derived from four original species by a complex system of crossing.

We can now better understand the position when Messrs. Veitch's first artificial hybrid Orchid flowered, and why it was called Calanthe Dominyi by Lindley, for the name was quite in harmony with Herbert's system. Messrs. Veitch's second hybrid, however, was exhibited as Cattleya hybrida, and the third as C. Dominiana. Somewhat later Reichenbach re-introduced descriptive adjectival names, as Phaius irroratus, Cypripedium vexillarium, C. stenophyllum, &c., and finally, in order to distinguish them from species, he began the practise of placing the sign of hybridity, ×, before the specific names of hybrids.

The next innovation was the introduction of classical names for hybrids, as Cypripedium Io, and this was followed by a set of vernacular names, as Cattleya Miss Harris, Cypripedium Charles Canham, C. Mrs. Canham (the reverse of the preceding), Cattleya Lamberhurst Hybrid, &c., the latter development being an unfortunate extension that has led to endless confusion, not so much through the use of such names as through using them in the wrong place. The fact is a florist's name is a varietal name of which the specific appellation is omitted or understood, and consequently it is not governed by the rules for specific names. A specific name is different, and the rule that it must consist of a single word, or of two short words that can be joined by a hyphen, has a sound basis of common sense and convenience behind it. Varietal names can then be added euphoniously, even when they are personal names consisting of two or three words, which cannot be said when the latter are used as specific names. Such a name as Cattleya William Murray fulgens is incongruous—and we have many worse—but the modified form, Cattleya Murrayi fulgens is quite euphonious, which shows the utility of the rule. This is rather a digression, but its significance will now be apparent.

Hybrid Orchids were now becoming more numerous, and were often exhibited without being described as in the early days. Moreover, as we have already seen, they were being named under two or three different systems, and with an unnecessary amount of duplication, all of which

tended to confusion and led to many complaints. At length, in 1889, the R.H.S. appointed a Committee to draw up Rules of Nomemclature for the Society's guidance. The Committee's Report appeared in the following year, and included the provision that hybrids between species should be named in Latin, and those between varieties in the vernacular, with the recommendation that the Society should refuse to recognise names not in accordance with these rules. Whether the rules were adequate or not need not concern us, but it is a matter of history that they were very partially followed, and did little to check the rapidly growing confusion.

The subject of Hybrid Nomenclature was again dealt with at the International Botanical Congress held at Vienna in 1905, when it was agreed that (*a*) Hybrids should be designated by a formula and a name, the formula to consist of the name of the two parents in alphabetical order, connected by the sign ×, and the name to be subject to the same rules as names of species, with the addition of the sign × before the name, and (*b*) that forms and half-breeds among cultivated plants should receive fancy names in common language.

Secondary hybrids, it will be seen, were not provided for in either case, though they were responsible for the major part of the confusion, owing to the amount of variation and reversion they present—of which the case of Cypripedium aureum is a notorious example. This omission was provided for in the *Orchid Stud-Book*, which recommended (*a*) that hybrids between species should receive specific names, Latin or classical, consisting of a single word, (*b*) that hybrids between the same two species should be considered forms of one, any sufficiently distinct forms being distinguished by suitable varietal names, and (*c*) that secondary hybrids, *i.e.*, those in which one or both parents are themselves hybrids, should as far as possible be dealt with under the preceding rules. There was a final recommendation, that "existing names which do not conform to the same rules may be amended, the original idea, however, being conserved as far as possible," which has led to much difference of opinion, and was discussed in detail at the following International Botanical Congress, held at Brussels in 1910 (see *O.R.*, xix. pp. 129-133, 322-325).

At this Congress the subject of Horticultural Nomenclature was specially considered, and some modifications and additions made. It was, however, agreed (*a*) that hybrids between the same two species should bear the same specific name, (*b*) that names should be in Latin or in a common language written with Latin characters; (*c*) that ternary or more complex hybrids should follow the same rules as ordinary hybrids; (*d*) that "names of varieties should be expressed whenever possible by a single word, the use of three words, however, being permitted as a maximum"; and (*e*) that "the same rule applies to the specific names of hybrids."

There is an unfortunate confusion of ideas in this last clause, which is not only out of harmony with the context but is opposed to all preceding rules. A hybrid is not a variety, and the common name to which varietal names are to be added is a specific name. Now the Congress adopted existing rules for species, but this clause reduces species and varieties to the same level, a condition of things that cannot be maintained. How such a clause came to be inserted we do not know, but, fortunately, we have evidence how the preceding clause was arrived at. After a long discussion the matter was put to the vote, when, the report states, one delegate voted for "a name of one word only; two for one word, if possible; six for one or two words; five for one to three words; one for a maximum of four words; six for the fewest words possible; and one for any number of words, without limit." After such a vote—the object of which was to give us a clear guiding light for the future!—anything was possible.

Apart from the last-mentioned lapse the intention of the rules is clear from the outset, and may now be summarised as follows:—

Hybrids of similar origin, whether the parents are species or hybrids, and including reverse crosses, shall be considered forms of one, and shall bear the same specific name, varieties being distinguished by the addition of suitable varietal names.

The specific name of a hybrid shall be limited to a single word, with the exception that two words may be used when they can be joined by a hyphen. Short words should be used as much as possible, those exceeding six syllables being considered inadmissible.

Names of varieties should be expressed whenever possible by a single word, the use of three words, however, being permitted as a maximum.

Other points, such as the way the formula shall be written, the nature of the name, and the use of the sign of hybridity, seem to us of subordinate importance. The great thing is to have a simple and intelligible system of nomenclature, that can be added to as required. It seems to us that either Latin, classical, or vernacular specific names may be used provided they conform to the rules. The sign of hybridity, ×, is not required when the formula is given, and both are generally omitted in ordinary use, for purposes of brevity.

Other points are mostly provided for, with the possible exception of hybrids recrossed with their parents, no new element being introduced, and hybrids of identical specific composition, though obtained in different ways, but these do not affect the questions dealt with in the preceding article, and particularly that of the specific names of hybrids. There has been a great improvement in this matter of late, and we are not without hope that a general understanding will be reached, and so pave the way for a more stable nomenclature in the future.

R.A.R.

ODONTIODA LATONA VAR. PEARL.

SEVERAL cases of reversion have been recorded among secondary hybrid Odontiodas, but none more remarkable than that of O. Latona var. Pearl, which is here figured from a photograph kindly sent by Clive Cookson, Esq., Oakwood, Wylam. The seed bearer was the handsome O. Bradshawiæ Cookson's var. (O. crispum × C. Nœtzliana), and the pollen was derived from Odontoglossum spectabile (crispum × Harryanum). It will thus appear that both parents are half derived from O. crispum, and the seedling—the only one that has yet flowered—has

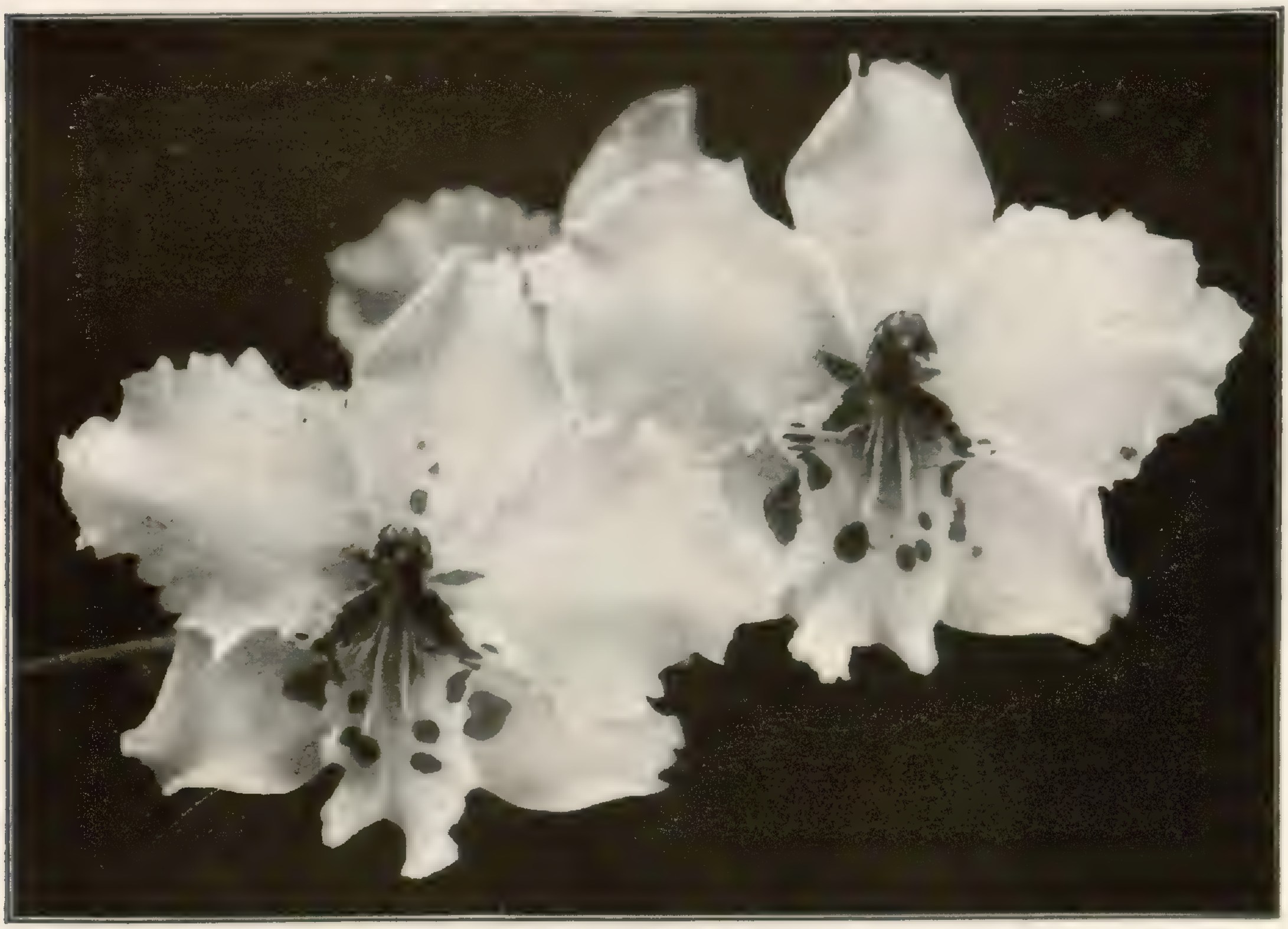

Fig. 17. ODONTIODA LATONA VAR. PEARL.

almost reverted to that species so far as colour is concerned, though in shape the influence of the seed bearer is more apparent, as a glance at the figure given at page 113 of our seventeenth volume will show. This is especially apparent in the shape and details of the column and lip, though the latter is somewhat broadened, perhaps by the influence of O. Harryanum, which is otherwise difficult to trace. A living flower was also sent. The ground colour is white, with a tinge of yellow on the lip, and there are two or three small light brown blotches at the base of the sepals, a single oblong blotch at the base of the petals, and several similar blotches

round the yellow crest of the lip. The seed parent of O. Bradshawiæ Cookson's var. was a good white O. crispum—this being the only case in which Mr. Chapman has successfully used the Cochlioda as the pollen parent—and we believe that the crispum parent of Odontoglossum spectabile was an unblotched form. It is a remarkable novelty, and when the seedling becomes stronger it would be interesting to self-fertilise it, to see whether the scarlet of the Cochlioda or the yellow and brown of O. Harryanum return in any of the seedlings.

Odontioda Latona was originally raised by Messrs. Charlesworth & Co., Haywards Heath, and was exhibited at the Holland House Show in 1912, when it was recorded as a richly-coloured form with darker blotches (*O.R.*, xx. p. 247), but Messrs. Charlesworth informs us that later seedlings from the batch have shown a considerable amount of variation, as in other batches of secondary hybrid Odontiodas. We also recall the handsome O. Latona Fowler's var., from the collection of J. Gurney Fowler, Esq., Glebelands, S. Woodford, which received a First-class Certificate from the R.H.S. in December, 1912, this having rosy blush sepals and petals, heavily blotched with brownish crimson, and the front of the lip white (*O.R.*, xxi. p. 34).

VARIATION IN SECONDARY HYBRID ODONTIODAS.

Messrs. Charlesworth & Co. have sent us a series of Odontiodas from five different crosses, to show the remarkable amount of variation among the secondary hybrids. Three are from O. Charlesworthii and one each from O. Vuylstekeæ and O. Bohnhofiæ.

O. ROYAL-GEM (O. Vuylstekeæ ♀ × Odontoglossum armainvillierense) is represented by five very distinct forms: 1, white with large purple-red blotches, most recalling a well-blotched O. Pescatorei; 2, yellowish white, with broad, rosy margin and large dark red-brown blotches; 3, a rosy lilac self, with a darker blotch and some yellow on the lip; 4, pale rose with heavy dark rose blotches, and much yellow on the lip; and 5, a very handsome dark rosy carmine self, with the basal half of the lip ruby-crimson, and some yellow in front. The resemblance to O. Pescatorei in shape is always very marked, coming in through both parents. (For two other forms see *O.R.*, xxi. p. 139).

O. JOAN (O. Charlesworthii × Odontoglossum armainvillierense ♀) is represented by eight distinct forms: 1, pale yellow, with a light rosy suffusion and large chocolate brown blotches; 2, light yellow, with light cinnamon orange blotches, and the apex of the lip buff yellow; 3, chocolate brown with a few yellow markings; 4, sepals dark salmon red, petals blotched with the same on a pink ground, and lip yellow with a round central blotch; 5, salmon red, with the base of the lip crimson, and much

yellow in front ; 6, a clear crimson-scarlet self, with orange-scarlet lip, and a little light yellow on each side of the crest ; 7, chocolate-purple with rosy reticulation (owing to the blotches being nearly confluent), and apex of lip lilac : and 8, near the last except in having the blotches violet-purple, and a broad blotch across the lip. Here O. Pescatorei comes in through only one parent, being replaced by O. Harryanum in the other, hence a marked resemblance to the latter in shape and colour. (For four others see *O.R.*, xxi. p. 139).

O. MADELINE (O. Charlesworthii × Og. crispum blotched form ♀) is represented by five diverse forms : 1, pale yellow, with zones of light brown; 2, ivory white with orange-crimson bars ; 3 pale yellow, barred and zoned with rich crimson, and the lip yellow with a crimson blotch ; 4, pale yellow, very heavily barred with crimson ; and 5, a dark chocolate-purple self with a few yellow markings on the lip. Here O. Pescatorei is entirely replaced by a blotched form of O. crispum.

O. PATRICIA (O. Charlesworthii × Og. Phœbe ♀) is represented by five diverse forms ; 1, heavily zoned with crimson-brown on a yellowish white ground ; 2, rather more heavily marked and of better shape ; 3, yellow with heavy crimson-brown blotches ; 4, almost dark chocolate-purple with many small yellow lines between the blotches ; and 5, a dark chocolate-brown self, with much yellow on the lip. Here half the O. crispum is replaced by O. cirrhosum, giving very accuminate segments and an elongate and branched spike. (For five others see *O.R.*, xxi. p. 167).

O. BRUNETTE (O. Bohnhofiæ ♀ × Og. Harryanum) is represented by eight different forms : 1, yellow with heavy chocolate-brown blotches ; 2, rather similar, but the front of the lip yellow ; 3, segments and lip all heavily blotched with chocolate-purple ; 4, chocolate-purple with narrow yellow lines between the blotches, and the lip yellow with many small purple blotches below ; 5, a light brown self ; 6, a purple-red self ; 7, a darker purple-red self of good shape ; and 8, still darker purple, with very acuminate segments and an orange blotch on the base of the lip. Here O. cirrhosum comes in through the Odontioda parent, giving an acuminate shape to the segments, while O. Harryanum comes in separately, giving an unusually dark colour.

It is a remarkable series, and Messrs Charlesworth remark that it affords an excellent illustration of what may be expected in the future. It is difficult to give an idea of the range of colour variation in a few words, and there are also differences in shape. It is fortunate that the parentage has been carefully recorded, for otherwise it is doubtful if some of them would have been correctly identified. Several of them are very handsome and will certainly be heard of again, for in many cases they are small seedlings producing their first flowers.

PLEIONE POGONIOIDES.

THIS distinct and pretty Chinese Pleione has at last flowered in cultivation, having been sent to Kew for determination by Messrs. Charlesworth & Co., Haywards Heath. It is said to have been received from China two years ago. Plants were previously sent by Mr. E. H. Wilson to Messrs. James Veitch & Sons, Chelsea, and one of them was grown at Kew but did not get strong enough to flower. The species was discovered as long ago as May, 1881, by Mr. T. Bullock, on wet rocks near Wu hu, in the province of An hwei, at an altitude of 3000 feet, and was briefly mentioned by Dr. Hance under the name of Pogonia sp. (*Journ. Bot.*, 1885, p. 247). It was afterwards met with by Dr. Henry on high mountains near Patang, and described as Cœlogyne (Pleione) pogonioides, Rolfe (*Kew Bull.*, 1896, p. 196), and afterwards as Pleione pogonioides (*O.R.*, xi. p. 291). Dr. Henry states that the bulbs are used in medicine, yielding a drug known as *Pen-mu*. Among cultivated species it is most comparable with the Indian P. Hookeriana (*Bot. Mag.*, t. 6388), but the flower is larger and both the segments and lip are light purple, the disc of the latter, however, being paler and having four fringed keels. Like that species, the leaves and flowers are borne together. It is an interesting addition to a very pretty little genus. R.A.R.

EPIDENDRUM O'BRIENIANUM: ANOTHER MENDELIAN EXPERIMENT.—The result of self-fertilising Epidendrum kewense has already been recorded (*O.R.*, xv. p. 58; xvii. pp. 13, 69). On the second occasion we remarked: "It would be interesting to self-fertilise E. O'Brienianum, for the parents show well-marked differences, both in floral and vegetative characters." This has since been done, and two seedlings of the resulting batch are now in flower at Kew, and reproduce the character of the original in all respects. In the earlier experiment the chief differences between the parents (E. evectum and E. xanthinum) is in the colour of the flowers (purple self and yellow self), but in the latter (evectum × radicans) there are other differences. E. radicans has a rooting stem, a decurved column, and scarlet flowers. No segregation is apparent in the vegetative characters of the seedlings, and the same applies to the floral characters of the two now in bloom. Many years ago we saw seedlings of E. O'Brienianum obtained by crossing with the pollen of Dendrobium crystallinum (*O.R.*, ii. p. 291; vii. p. 199), and they were practically reproductions of the mother plant. It was not quite clear whether it was a case of false hybridism or of accidental self-fertilisation, but if the latter it would confirm the present indications that Epidendrum O'Brienianum is a stable hybrid. R.A.R.

CALENDAR OF OPERATIONS FOR APRIL.

By T. W. BRISCOE, Late Foreman of Messrs. Veitch's Hybridising Department.

THROUGHOUT the present month careful attention must be paid to the shading and ventilation of the various divisions, as the weather is usually very changeable. We shall no doubt experience intervals of bright sunshine which will be injurious to young growth if unprotected, while a period of cloud, perhaps accompanied by a cold shower of rain, will cause a sudden fall in the temperature if due precautions are not taken by closing the ventilators. In regard to ventilation we must consider the local conditions—in fact these play an important part in Orchid culture—houses in sheltered situations can be more freely ventilated than those in exposed districts. Here it may be expedient to lower the blinds earlier in the day, and a good plan for the amateur to follow is to run them down directly the leaves feel warm to the touch. The Intermediate and Cool houses must be particularly watched to prevent the temperature rising excessively high, and when the thermometer records 65° in the former and 60° in the latter the blinds ought to be lowered at once. They should remain down on these Cool houses till the sun has ceased to shine on the roof, but with warmer houses, especially those devoted to Cattleyas and their allies, the blinds must be removed an hour or so before that time, or as soon as all danger from the sun's rays is past.

A moist, growing atmosphere must be maintained in each department, and to this end the floors and stages should be damped down whenever they become dry. Each plant that is growing should be afforded a liberal supply of water, and any specimens that require top-dressing or repotting must be taken in hand before root action is very far advanced. Plants pushing up their flower scapes ought to be kept just moist at the base, and such as Cattleyas, &c., may be neatly staked before the buds are fully grown. Such subjects as Oncidiums, and any Orchid that is showing signs of going back, must have their spikes cut off if the pseudobulbs begin to shrivel. The dwarf-growing Odontoglossum Rossii, Oerstedii, and Cervantesii are allowed a short season of repose as they pass the flowering stage, but they must not be dried off to any great extent.

Most of the Pleiones are growing freely on a shelf or suspended near the roof glass in the Intermediate division, and must be given plenty of water until the bulbs are near completion. Cœlogyne cristata will need water in small quantities till root action is evident, when any fresh compost can be applied. Frequent disturbance at the root is not advisable, but it is often possible to work in a little new soil between the growths without repotting the plants. The Mexican Lælias ought to receive plenty of light

and will only need shading during the middle of the day if the house is properly ventilated.

SEEDLINGS.—I have already referred to the various methods of sowing the seed, and will now endeavour to make a few remarks upon the subsequent treatment of the seedlings. Where seed was sown earlier in the year, it should now be showing signs of vitality, and forming little green globules. These eventually become pointed, and in due time tiny roots are formed. At this stage they can be pricked off into what is known as store pots, but at one time thimble pots were employed, which were plunged in some moisture-holding material. Several seedlings are placed in the former and one in the latter. The last-named method has its advantages, as the seedling has a separate existence from the start, and it can be moved on when ready without disturbing other seedlings, but they occupy more space, and thus it is only practicable where small quantities are raised.

PREPARATION OF STORE POTS.—These should be filled one-third of their depth with drainage, over which is placed a thin layer of the usual potting mixture. Whatever is used for the top layer it must be cut up rather fine, and a tolerably firm and even surface made. It may consist of a mixture of osmunda fibre, peat, and sphagnum moss, with a few partly-decayed leaves or Belgian leaf soil, while many choose sphagnum alone. When preparing the latter it will be necessary to pick off the large heads, or the seedlings will quickly be over-grown. The surface should be just below the rim of the pot, and each must be given a thorough watering. After a few hours have elapsed they will be ready for the seedlings, providing the soil has become warm. A convenient distance between each seedling is a quarter of an inch, or less if very small, and when the operation is finished a light spray may be given to keep them in their positions. The receptacles in which the seed was sown can be returned to the raising case, if it contains any of the little green globules and sufficient has not been pricked off.

SUBSEQUENT TREATMENT.—Where there is enough space the store pots can be arranged in the seedling case for a few weeks, and failing this they should be placed near the glass in the warmest house. A moist atmosphere is necessary, and the pots must be sprayed over occasionally, while they should be protected from all strong sunlight. If the conditions are favourable the seedlings will soon increase in size, and in a few months be large enough to go three or four in a thumb pot, but it is advisable to pot them off singly as soon as possible, then their individual requirements can be fully dealt with.

ODONTOGLOSSUM AND OTHER COOL-GROWING SEEDLINGS.—The procedure in regard to potting and soil is much the same as for Cattleyas, &c., but a cooler house is needed. A temperature of 55° to 60° F. is best for these plants, and they must be carefully shaded at all

times. Cleanliness is a most important factor, and thrip must be rigorously excluded, or little or no progress will be made. Our object should be to keep them growing from the time of germination until the flowering stage is reached. If at any time fungi or lichenous growth attack the seed pans or store pots, the seedlings ought to be removed into fresh soil at once, irrespective of season or growth. Most collections are troubled more or less with the small "moss" fly, and there seems to be no way of eradicating this nuisance. It is introduced with the potting material, and if they are at all numerous the compost becomes a sour mass in which no Orchids will thrive. A good plan is to spray over the seedlings before vaporising the house, or to vaporise immediately after the usual watering is done. An occasional spraying with a weak solution of XL All liquid insecticide or the new phytophiline is also beneficial.

Sophronitis grandiflora.—This brilliant little Orchid may be repotted or top-dressed when new roots are seen at the base of the partly-developed growths. Large receptacles are not required, and only a small quantity of soil is needed. Suspend them from the roof either in the Cool or Intermediate house.

Dendrobiums.—In some establishments there is a Dendrobium house, but this is not really necessary where other warm Orchids are cultivated, or an ordinary plant stove exists. They need ample heat and moisture while growing, but directly they have completed their season's growth a cooler and drier house must be chosen, or an early vinery is an ideal spot, if such accommodation can be procured. During the present month some of the nobile section will require attention at the root. Any that are in need of it must be repotted in a mixture of osmunda fibre, Ar fibre, and fresh sphagnum moss. After being disturbed at the base, water must be applied discreetly, or many of the new shoots will damp off, but when the roots reach the edge of the pots or pans they ought to be liberally supplied until the pseudobulbs are fully developed. Throughout the growing period they should receive as much light as possible short of scorching the foliage. The number of hours that a thin shading will be needed largely depends upon the position of the structure. A close, stuffy atmosphere must be avoided, and when the external air is above 40° F. the bottom ventilators may be open an inch or so both day and night. When the weather is hot a light spraying overhead and an occasional syringing between the pots may be practised with beneficial results.

Thunias.—As these plants start into growth, they should be overhauled and afforded fresh rooting material. The whole of the soil is shaken away, the dead roots cut off, and the plants repotted in a mixture of sphagnum moss, fibrous loam, and one of the well-known fibres. The stems may either be potted separately or three or four in a receptacle, but each stem

ought to have a support to hold it in position until the new shoot gets well away. When the repotting is completed, the plants may be given a light, sunny position in the warmest division, or for preference in the Dendrobium house if one is set apart for this class of Orchid. For a few weeks careful watering must be the rule, but once they are established plenty of moisture at the base is essential, and every facility provided to assist them in making fine sturdy bulbs, as their growing period is a comparatively short one. A weak application of manure water, with a little soot thrown in, is beneficial when the pots are full of roots, but it should be discontinued directly the flower scapes are seen peeping out of the top of the stems. After flowering they are gradually dried off, and take a long resting season in a temperature of 50° or 55° F.

CATASETUMS.—This is a genus of curious Orchids, but a few of the species, such as macrocarpum, Bungerothii, and splendens are well worth cultivating from the decorative standpoint. They are often grown in teak wood baskets, but pots or pans do equally well, and they can be planted in the ordinary Orchid compost. The Catasetums need similar treatment in the growing season to Dendrobiums, but they require a long rest during the winter months. The Mormodes and Cycnoches may also be grown in the same house. All should be repotted when the new growth is about to push out roots, and receive plenty of water and heat through the summer months.

NANODES MEDUSÆ should be placed near the glass in the Intermediate house, preferably at the coolest end, and receive liberal waterings from now onwards. It delights in a porous compost, which must be renewed at intervals as the necessity arises. The curious flowers that appear at the end of the succulent growths are always a source of interest.

LISSOCHILUS.—These fine terrestrial Orchids may be repotted in a mixture of fibrous loam, leaf-mould, and sand directly new growth is apparent, and grown in a warm moist house. During this period plenty of water must be afforded, but when the season's growth is finished a decided rest is needed in slightly cooler surroundings. Heavy shade is not conducive to the production of strong spikes.

MILTONIA VEXILLARIA, with its many beautiful varieties, will soon be pushing up their flower spikes, and each plant should be examined occasionally to see that their progress is not retarded by sticking to the leaf surrounding them. They can be released with the handle of a budding knife. If slugs are prevalent a band of cotton wool arranged around each scape will help to protect them from these marauders, but it is not an infallible remedy. A walk round each night with a lamp will be more effectual, and a few balls of cockroach paste should be put down at intervals, for these pests are also very destructive.

ODONTIODA QUEEN-MARY.

THE accompanying figure represents the handsome Odontioda Queen-Mary (Odontioda Vuylstekeæ × Odontoglossum eximium), which was exhibited by Messrs. Charlesworth & Co., Haywards Heath, at the Royal International Horticultural Exhibition, held at Chelsea in May, 1912, and was awarded a First-class Certificate by the Orchid Committee

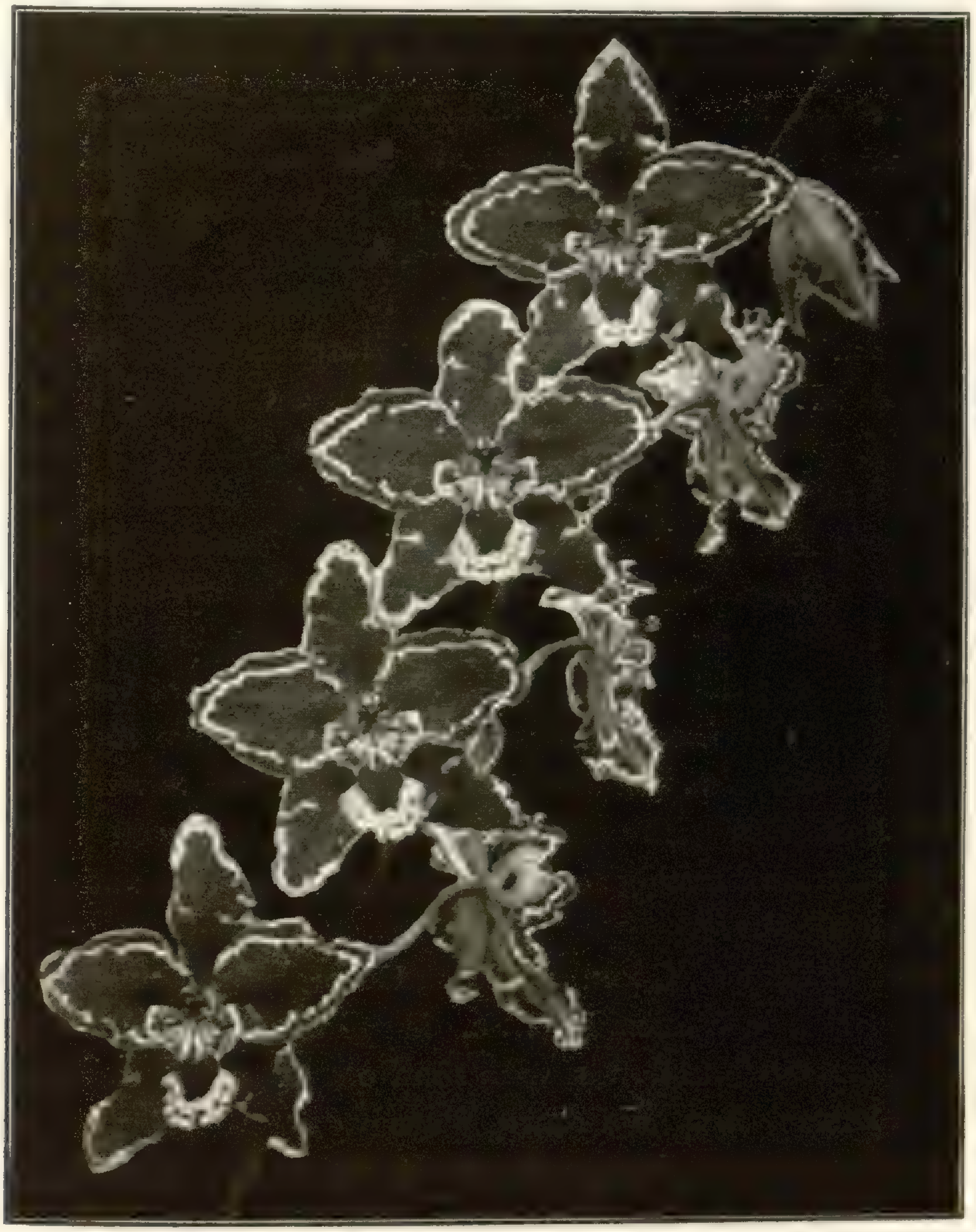

Fig. 16. ODONTIODA QUEEN-MARY.

of the Royal Horticultural Society. The figure is reproduced from a photograph sent by the exhibitors. It is a hybrid of excellent shape, and remarkably brilliant colour, the sepals and petals being dark scarlet-red, margined with light rose, and the petals having also a distinct yellowish-white line some little distance within the margin. The lip is pandurately three-lobed, with a yellowish ground-colour, a large crimson blotch in front

of the yellow crest, and the apex white with a few salmon-red markings. The plant has passed into the fine collection of W. R. Lee, Esq., Plumpton Hall, Heywood, near Manchester.

SOCIETIES.

ROYAL HORTICULTURAL.

A MEETING was held at the Royal Horticultural Hall, Vincent Square, Westminster, on March 10th, when there was a fine display of Orchids, which, owing to the special Bulb Competition, were almost confined to the Orchid annexe, and rather crowded. The awards consisted of eight medals, one First-class Certificate, and two Awards of Merit.

Orchid Committee present: Sir Harry J. Veitch (in the Chair), and Messrs. J. O'Brien (hon. sec.), Gurney Wilson, F. M. Ogilvie, R. A. Rolfe, R. G. Thwaites, F. J. Hanbury, T. Armstrong, A. McBean, W. Cobb, J. Charlesworth, J. Cypher, W. H. Hatcher, H. G. Alexander, G. Hunter, A. Dye, E. H. Davidson, S. W. Flory, C. Cookson, W. Bolton, and de Barri Crawshay.

Lt.-Col. Sir George L. Holford, K.C.V.O., Westonbirt (gr. Mr. Alexander), sent the handsome Læliocattleya Glaucus Westonbirt var. (L. purpurata × L.-c. rubens), bearing four brilliantly-coloured flowers, and a very striking Sophrocattleya (see Awards).

E. R. Ashton, Esq., Broadlands, Tunbridge Wells, sent Cattleya Trianæ Broadlands var., and Læliocattleya Marion (L.-c. Clive × L. tenebrosa) most like the former in shape, and with richly-coloured flowers.

W. C. Clark, Esq., Boscombe, Bournemouth, showed Læliocattleya luminosa Clark's var., having rosy buff sepals and petals, and the front of the lip rose-purple.

The Earl of Craven, Coombe Abbey, Coventry (gr. Mr. H. Chandler), sent Læliocattleya corneliensis (L.-c. Haroldiana × C. Schrœderæ), a charming yellowish white flower, with the front of the lip rose-purple.

H. S. Goodson, Esq., Fairlawn, Putney (gr. Mr. Day), sent the fine Brassocatlælia Joan, and Sophrocatlælia Marathon Goodson's var.

F. M. Ogilvie, Esq., The Shrubbery, Oxford (gr. Mr. Balmforth), sent a fine Lycaste Skinneri alba, Cattleya Empress Frederick var. alba, and a good C. Trianæ.

Pantia Ralli, Esq., Ashtead Park, Surrey (gr. Mr. Farnes), sent Odontioda Hemptinneana (C. Nœtzliana × O. eximium), a deep scarlet form, O. illustris, a dark red form of unknown parentage, O. keighleyensis Ashtead Park var., with some yellow markings on the petals, two blotched forms of Odontoglossum crispum, and Miltonia St.-Andre Ashtead Park var.

R. G. Thwaites, Esq., Chessington, Streatham (gr. Mr. E. J.

Hannington), sent examples of the deep yellow Dendrobium chessingtonense, D. Austinii, Cattleya Empress Frederick, a good C. Octave Doin, an Odontioda and an Odontoglossum (see New Hybrids, p. 125).

Messrs. Charlesworth & Co., Haywards Heath, staged a fine group, including several beautiful hybrid Odontoglossums and forms of O. crispum, a form of O. harvengtense with exceptionally broad segments, Miltonia Bleuana with three racemes, some brilliant Odontiodas, Cœlogyne sparsa, Dendrobium atroviolaceum, Lycaste gigantea with fourteen flowers, a fine Brassolælia Helen, Cypripedium Rothschildianum, Brassocattleya Maronii, Cymbidium Alexanderi, Oncidium concolor, Læliocattleya Myra, and others, with some good plants of Sophronitis grandiflora and Angræcum citratum in front (Silver Flora Medal).

Messrs. Sander & Sons, St. Albans, staged a fine group, including Cattleya Olaf var. venusta, white with purple apex to the lip, the brilliant Sophrocatlælia Danæ, Odontoglossum Fletcherianum, and others, Pleurothallis Roezlii, Cymbidium Lowio-Mastersii × insigne, C. Gottianum, Odontioda Cooksoniæ, Miltonia St.-Andre, Brassocattleya Sylvia (B.-c. Sedenii × C. Trianæ), Renanthera Imschootiana, Masdevallia Schrœderiana, Cirrhopetalum picturatum, and others (Silver Flora Medal.)

Messrs. James Veitch & Sons, Chelsea, staged a very fine group, including many well-flowered Dendrobium Wardianum, fine examples of Odontoglossum Dora and armainvillierense, Odontioda chelseiensis, some well-flowered Lycaste Skinneri, and a richly-coloured Læliocattleya Gottoiana which flowered in an importation of Lælia tenebrosa (Silver Flora Medal).

Messrs. Armstrong & Brown, Tunbridge Wells, staged a choice group, including several promising seedling Odontoglossum crispum and blotched hybrids, Dendrobium chessingtonense, D. nobile virginale, D. Rolfeæ, Odontioda keighleyensis, a fine Cattleya Suzanne Hye de Crom, a good form of Læliocattleya Myra, L.-c. Myrosa (Myra × luminosa), having yellow sepals and petals tinged with purple, and the front of the lip dark violet-purple, &c. (Silver Flora Medal).

Messrs. James Cypher & Sons, Cheltenham, staged a good group of Cattleyas, Cypripediums, and Odontoglossums, with the rare Sarcochilus Fitzgeraldii, Dendrobium chrysodiscus, D. Ainsworthii intertextum, Lycaste Skinneri and var. alba, Miltonia Bleuana, Ada aurantiaca, Angræcum citratum, and a brilliant Læliocattleya from C. labiata and L.-c. luminosa (Silver Banksian Medal).

Messrs. Stuart Low & Co., Jarvisbrook, Sussex, staged a good group, including a fine example of Dendrobium Jamesianum, Læliocattleya Myra, Odontioda Charlesworthii, some good Odontoglossum Jasper, Cypripediums, Brassocattleya langleyensis, and several of the brilliant Sophrocattleya grandiflora in front (Silver Banksian Medal).

Messrs. Flory & Black, Orchid Nursery, Slough, staged a few good things, including Læliocattleya Verona (L. anceps × C. Hardyana), a pretty rose-coloured hybrid with orange yellow disc to the lip, Cattleya Trianæ Exquisite, with a broad purple band at the apex of the sepals, two plants of the pretty white Disa sagittalis, and a few good Cypripediums (Bronze Banksian Medal).

Messrs. W. B. Hartland & Co., Cork, staged a small group, including Cypripedium aureum Surprise, C. Euryades, Odontoglossum Rolfeæ, crispum and Thompsonianum, Cymbidium insigne, C. Lady Colman, and a hybrid between C. giganteum and C. Tracyanum (Bronze Banksian Medal).

Messrs. E. H. Davidson & Co., Orchid Dene, Twyford, staged a small group, including a plant of the brilliant Habenaria Roebelenii, Sophrocatlælia Elissa, Læliocattleya Feronia, Cattleya Trianæ and Empress Frederick, a fine Sephronitis grandiflora, and a few good Odontoglossums, Odontiodas, and Brassocattleyas.

Messrs. Hassall & Co., Southgate, sent a few good Orchids, including Renanthera Imschootiana, Odontoglossum Thompsonianum and pulchellum, a fine Angræcum sesquipedale, Cattleya Trianæ alba, some fine Lycaste Skinneri, Brassocattleya Menda, and others.

Messrs. J. & A. McBean, Cooksbridge, sent a small group, including Læliocattleya Euripides (Myra × Goldcrest) a clear yellow hybrid, several fine Odontoglossum crispum and scarlet Odontiodas, Brassocattleya Leemanniæ magnifica, Masdevallia Veitchiana, and others.

M. Maurice Mertens, Ghent, showed Cattleya Trianæ alba, and a few good Odontoglossums.

FIRST-CLASS CERTIFICATE.

SOPHROCATTLEYA WELLESLEYÆ WESTONBIRT VAR. (S. grandiflora × C. labiata).—A remarkably brilliant form, bearing three large carmine-rose flowers of excellent shape, with some red veining on the yellow throat of the lip. Exhibited by Lt.-Col. Sir Geogre L. Holford, K.C.V.O.

AWARDS OF MERIT.

DENDROBIUM BASSATTII (Rolfeæ × melanodiscus Salteri).—A very beautiful form, most like D. Rolfeæ roseum in general character, and having broad rose-coloured sepals and petals, with a little rose at the apex of the lip, and a few rosy lines at the base. Exhibited by Mrs. T. B. Haywood, Woodhatch, Reigate (gr. Mr. Bassatt).

LÆLIOCATTLEYA DULCE (L. anceps Sanderiana × C. Mendelii).—A handsome hybrid, most like the former in general character, and bearing an inflorescence of three, blush-white flowers, with the front lobe of the lip purple. Exhibited by Messrs. Sander & Sons.

At the meeting held on March 24th there was a fine display of Orchids, and the awards consisted of nine medals, one First-class Certificate, two Awards of Merit, and two Cultural Commendations.

Orchid Committee present: J. Gurney Fowler, Esq. (in the Chair), Messrs. J. O'Brien (hon. sec.), Gurney Wilson, de Barri Crawshay, W. Bolton, R. Brooman White, S. W. Flory, W. H. White, E. H. Davidson, J. Cypher, J. Charlesworth, H. G. Alexander, J. E. Shill, A. McBean, W. Cobb, F. M. Ogilvie, R. G. Thwaites, W. H. Hatcher, Stuart Low, T. Armstrong, W. P. Bound, A. Dye, R. A. Rolfe, Sir Harry J. Veitch, and Sir Jeremiah Colman, Bart.

H. T. Pitt, Esq., Rosslyn, Stamford Hill (gr. Mr. Thurgood), was awarded a Silver Flora Medal for a fine group, including a well-flowered Eulophiella Elisabethæ, Miltonia Warscewiczii, the tiny Masdevallia simula, Cypripedium Mastersianum and several others, Læliocattleya Avoca (L. Latona × C. Trianæ), Brassocattleya William Pitt (C. Octave Doin × B.-c. Mariæ), Cymbidium Lady Colman, Lowgrinum, and Veitchii, Odontoglossum luteopurpureum Vuylstekeanum, O. Rossii, and a few good Odontiodas.

Sir Jeremiah Colman, Bart., Gatton Park, Reigate (gr. Mr. Collier), staged a group of nine well-grown plants of Odontioda Bradshawiæ and Vuylstekeæ, bearing a profusion of beautiful scarlet flowers, a Silver Medal being awarded. He also sent O. Colmanii (see New Hybrids, p. 125).

E. R. Ashton, Esq., Broadlands, Tunbridge Wells, sent the beautiful Miltonia vexillaria var. Lyoth (v. chelseiensis × memoria G. D. Owen), a very pretty pink variety with rosy crimson mask on the lip.

W. Waters Butler, Esq., Southfield, Edgbaston (gr. Mr. Jones), showed the handsome Cattleya Tityus Southfield var. (Octave Doin × Enid), bearing a spike of four large and brilliantly-coloured flowers, with some yellow veining on the lip's base.

Sir John Edwards Moss, Bart., Roby Hall, Torquay, sent as a curiosity a flower of a Læliocattleya having the sepals curiously abbreviated and undeveloped.

Pantia Ralli, Esq., Ashtead Park, Surrey (gr. Mr. Farnes), sent Odontoglossum Aureole, a pretty yellow hybrid of unrecorded parentage, having the disc of the petals white, and a few brown blotches on the lip. The O. triumphans influence was very marked in the lip, and it is probably a form of O. loochristiense.

R. G. Thwaites, Esq., Chessington, Streatham Hill (gr. Mr. E. J. Hannington), sent Odontioda Sanderæ, Odontoglossum Newlingii (see p. 125), O. Vuylcirrha (Vuylstekeæ × cirrhosum), and a few others.

Messrs. Sander & Sons, St. Albans, staged a very fine group, including many Cymbidium insigne, with examples of C. Pauwelsii, Gottianum,

Wiganianum, and a well-flowered C. eburneum, three good plants of Cœlogyne Lawrenceana, Pleurothallis Roezlii, Maxillaria Fletcheri, Megaclinium maximum, Angræcum citratum, Renanthera Imschootiana, Cirrhopetalum Mastersianum and pulchellum, and a few good Læliocattleyas, Cypripediums, Odontoglossums, and Dendrobiums (Silver-gilt Flora Medal).

Messrs. Armstrong & Brown, Tunbridge Wells, showed a fine group, including a number of seedling Odontoglossums flowering for the first time, O. Royal-Purple (illustre × Edwardii) being entirely rich violet-purple in colour, brilliant forms of Odontioda keighleyensis, Bradshawiæ and Leeana, some well-flowered Dendrobium nobile and var. virginale, Læliocattleya Myra, Miltonia St.-Andre and Bleuana, with a number of Cattleyas and Cypripediums (Silver Flora Medal).

Messrs. Charlesworth and Co., Haywards Heath, staged a choice group, including several brilliant Odontiodas, the beautiful Miltonia Charlesworthii (figured at page 313 of our last volume), the pretty Odontoglossum crispum Queen Maud with peloriate flowers, with some other fine O. crispum and blotched hybrids, Angræcum sesquipedale, and a number of well-flowered Sophronitis grandiflora and Oncidium concolor in front (Silver Flora Medal).

Messrs. Stuart Low & Co., Jarvisbrook, Sussex, staged a fine group, in which the Dendrobiums were particularly good, and included examples of D. Brymerianum, fimbriatum, crassinode album, Wardianum, and Jamesianum, with some good Oncidium sarcodes, Phalænopsis Aphrodite and intermedia, a well-flowered Lælia Jongheana, Cattleya Schrœderæ, Sophrocatlælia bletchleyflora, Odontioda beechensis and Wilsonii, and some good Odontoglossums, Cypripediums, &c. (Silver Flora Medal).

Messrs. James Cypher & Sons, Cheltenham, showed a very pretty group, in which the deep yellow Dendrobium Thwaitesiæ Veitch's var., good forms of D. nobile, and D. Dalhou-nobile were conspicuous, with Angræcum sesquipedale and citratum, Phalænopsis Sanderiana, Epidendrum xanthinum, Sarcochilus Fitzgeraldii, Oncidium concolor, the rare Masdevallia gargantua, M. Chimæra, and some fine Cypripediums (Silver Banksian Medal).

Messrs. Flory & Black, Orchid Nursery, Slough, staged a good group, including a spotted form of Odontoglossum Pescatorei and some hybrids, Lycaste Skinneri alba, Disa sagittalis, Gongora truncata, Læliocattleya Boylei, Violetta, Invincible var. Orana, and others (Silver Banksian Medal).

Messrs. Hassall & Co., Southgate, staged a pretty group, including a fine form of Cattleya Schrœderæ, Renanthera Imschootiana, Maxillaria Sanderiana, Lycaste Skinneri, and several good Odontoglossums (Silver Banksian Medal).

Messrs. E. H. Davidson & Co., Orchid Dene, Twyford, sent Odontioda Bradshawiæ Borlases var., a large scarlet form.

Messrs. J. & A. McBean, Cooksbridge, staged a small group of brightly-coloured Odontiodas, with Odontoglossum Pescatorei Pitt's var., the white Cattleya Brenda, and a few good Cymbidiums.

First-class Certificate.

Odontioda Zenobia (O. Charlesworthii × Odontoglossum percultum).—A very fine hybrid, having broad, obtuse, dark chocolate brown sepals and petals, and a very broad rose-purple lip, with a yellow crest and a little white at the basal angles. Exhibited by F. M. Ogilvie, Esq., The Shrubbery, Oxford (gr. Mr. Balmforth).

Awards of Merit.

Dendrobium superbum Huttoni Southfield var.—A fine white form, with an unusually large feathered blotch on the lip. Exhibited by W. Waters Butler, Esq., Southfield, Edgbaston.

Sophrocatlælia Niobe Orchid Dene var. (L.-c. Gottoiana × S.-l. Felicia).—A very beautiful form, of good shape, and having bright rose-purple flowers, with a dark claret-red lip. Exhibited by Messrs. E. H. Davidson & Co.

Cultural Commendations.

Dendrobium glumaceum.—To Mr. W. H. White, Orchid grower to Lady Lawrence, Burford, for a very fine plant, bearing about 100 spikes of white fragrant flowers.

Odontioda Bradshawiæ.—To Mr. J. Collier, gardener to Sir Jeremiah Colman, Bart, Gatton Park, for a very fine plant, bearing a branched inflorescence with 119 scarlet flowers.

Manchester and North of England Orchid.

At the meeting held at the Coal Exchange, Manchester, on Thursday, February 26th, the members of Committee present were: Rev. J. Crombleholme (in the Chair), Messrs. J. Bamber, J. Cypher, A. G. Ellwood, J. Evans, A. Hanmer, J. Howes, J. Lupton, D. McLeod, C. Parker, W. Shackleton, A. Warburton, Z. A. Ward, A. A. McBean, and H. Arthur (Secretary).

R. Ashworth, Esq., Newchurch (gr. Mr. Gilden), was awarded a Silver-gilt Medal for a fine group of Odontoglossums and various other Orchids.

O. O. Wrigley, Esq., Bury (gr. Mr. Rogers), staged a magnificent group of Lycastes, containing over a dozen named varieties of L. Skinneri, with L. lasioglossa, Imshootiana, and Tunstillii, a Silver-gilt Medal being awarded to the gardener for excellence of culture, some of the plants with a single lead carrying up to a dozen flowers.

Large Silver Medals were awarded to A. Warburton, Esq., Haslingden

(gr. Mr. Dalgleish), and Messrs. Cypher and Sons, Cheltenham, for fine miscellaneous groups.

Silver Medals were awarded to W. Thompson, Esq., Walton Grange (gr. Mr. Howes), and Messrs. Sander & Sons, St. Albans, for good mixed groups, in both cases the favourite genus Odontoglossum being well to the front.

J. Leemann, Esq., Heaton Mersey (gr. Mr. Smith), sent Læliocattleya Gottoiana × Cattleya Dowiana aurea.

Interesting exhibits were staged by W. R. Lee, Esq., Plumpton Hall (gr. Mr. Branch); Col. J. Rutherford, M.P., Blackburn (gr. Mr. Lupton); R. le Doux, Esq., West Derby (gr. Mr. Fletcher); Messrs. E. H. Davidson & Co., Twyford, Berks; Messrs. A. J. Keeling & Sons, Bradford; Messrs. Charlesworth & Co., Haywards Heath; Mr. J. Evans, Congleton; Mr. W. Shackleton, Great Horton, Bradford, and Mr. D. McLeod, Chorlton-cum-Hardy.

FIRST-CLASS CERTIFICATES.

Odontoglossum eximium var. Iduna, a large well-set flower, of almost solid colour, the segments edged with white, from W. R. Lee, Esq.

Cattleya Trianæ Orchid Dene var., a gigantic flower of good shape and colour, from Messrs. E. H. Davidson & Co.

AWARDS OF MERIT.

Odontoglossum Rufus O. Distinction, and O. crispum var. Meteor, Odontioda Brewii var. nigro-rubra, and Cattleya Octave Doin var. Queen Mary, all from R. Ashworth, Esq.

Odontoglossum fuscans, Læliocattleya Lucasiana, Cypripedium Lord Trevor var. Pyramus, from Wm. Thompson, Esq.

Cypripedium Thisbe (Mrs. Mostyn × Leeanum Clinkaberryanum), from W. R. Lee, Esq.

Odontoglossum Edith d'Abrew, from R. le Doux, Esq.

Odontioda Diana Leemann's var., from J. Leemann, Esq.

Odontoglossum Twyford Gem (Rossii rubescens × formosum), from Messrs. E. H. Davidson & Co.

Dendrobium Cybele album (nobile virginale × Findlayanum album), from Messrs. A. J. Keeling & Sons.

CULTURAL CERTIFICATE.

Masdevallia triangularis, from Wm. Thompson, Esq.

At the meeting held on March 12th, the members of Committee present were:—Rev. J. Crombleholme (in the Chair), Messrs. J. Bamber, J. Cypher, A. G. Ellwood, J. Evans, J. Lupton, A. A. McBean, D. McLeod, W. J. Morgan, C. Parker, W. Shackleton, H. Thorp, A. Warburton, Z. A. Ward, G. Weatherby, and H. Arthur (Secretary).

A Gold Medal was awarded to J. Leemann, Esq., West Bank House, Heaton Mersey (gr. Mr. Smith), for a magnificent group, in which Cattleyas, Læliocattleyas, Cymbidiums, Odontoglossums and others were represented by numerous well-grown examples. A Bronze Medal and Cultural Certificate were awarded to the gardener for a very fine plant of Cypripedium Thompsonianum.

Large Silver Medals were awarded to R. Ashworth, Esq., Newchurch (gr. Mr. Gilden), and A. Warburton, Esq., Haslingden (gr. Mr. Dalgleish), for fine representative groups.

Silver Medals were awarded to Wm. Thompson, Esq., Walton Grange (gr. Mr. Howes); Messrs. Cypher & Sons, Cheltenham, and Mr. W. A. Manda, for good groups, the latter containing an interesting natural hybrid Phalænopsis.

Interesting exhibits were staged by O. O. Wrigley, Esq., Bury (gr. Mr. Rogers), including Cypripedium Thompsonii × villexul; Col. J. Rutherford, M.P., Blackburn (gr. Mr. Lupton); W. R. Lee, Esq., Plumpton Hall (gr. Mr. Branch); J. Butterworth, Esq. Burnley (gr. Mr. Wilson); R. le Doux, Esq., West Derby (gr. Mr. Fletcher); Wm. Bolton, Esq., Warrington (gr. Mr. Cain); H. Arthur, Esq., Blackburn; Messrs. Sander & Sons, St. Albans; Messrs. A. J. Keeling & Sons, Bradford; Messrs. Charlesworth & Co., Haywards Heath; Mr. W. Shackleton, Great Horton, Bradford, and Mr. J. Evans, Congleton, the latter a fine plant of Odontioda Bradshawiæ with a branched spike of 110 flowers.

First-class Certificates.

Cattleya Trianæ F. McBean, a large well-set flower, with distinct markings in the lip; C. Suzanne Hye de Crom var. magnifica, the largest and best seen of the type; and Odontioda Diana var. Leeana, with flowers of good shape and intense colour, all from W. R. Lee, Esq.

Odontoglossum mirum (Wilckeanum × crispum), a large flower with very distinct markings; Odontioda Schrœderæ var. Walton Gem (Bradshawiæ × crispum Oakwood Ruby), a large flower, of good round crispum type; Cattleya Trianæ var. Walton Monarch, a large round flower, of good even colour, all from Wm. Thompson, Esq.

Cymbidium Pauwelsii giganteum, a large, well-marked flower, from John Leemann, Esq.

Odontoglossum crispum Eugenie (O. c. Mandyanum × Franz Masereel), a good, round, evenly marked flower, from J. Butterworth, Esq.

Odontioda Mrs. R. le Doux (Bradshawiæ × Wilckeanum), the finest of the type yet seen, with large brilliant crimson sepals and petals, and a white lip with large blotch of colour, from R. le Doux, Esq.

Awards of Merit.

Cattleya Trianæ mirabile, from Wm. Thompson, Esq.

Sophrocatlælia Marathon Leemann's var., and Cypripedium Griffin No. 2, from John Leemann, Esq.

Odontoglossum Siren (Pluto × Etna), from R. Ashworth, Esq.

Læliocattleya Dulce (C. Mendelii × L. anceps Sanderiana), from Messrs. Sander & Sons.

THE AMATEUR'S COLLECTION.

By C. ALWYN HARRISON.

WE are now coming to the time when our plants receive more light and sunshine, and hence an atmosphere well supplied with atmospheric moisture is needed. This is obviously attained by the practice of damping down, but it is not possible to state exactly how often this should be done, as every house differs in its power of retaining humidity, site, locality, aspect, and construction all contributing to cause vast differences. The grower, therefore, must judge when he deems it advisable to damp down, combining this with careful and judicious ventilation. All plants will, however, now delight in a gentle spray over their leaves, and most growers advocate this being performed at least once a day.

The majority of the Dendrobiums will now be over, and should be placed together at the warmest end of the house, only slightly shaded, and their immediate surroundings kept moist, whilst water at the root will be needed in quantity. To enable these lovely Orchids to make a grand display the following year, everything depends now upon their new growths getting a satisfactory start, and hence light, a fresh and well-ventilated moist atmosphere, and a careful watch against thrips will contribute largely to their welfare. If thrips are present fumigation should be resorted to, removing from the house any plants in full bloom.

If needing it, Dendrobiums may now be repotted, and they must be placed in pots or suspended in Orchid pans which are comparatively small in proportion to the plant's size. All dead roots must be cut away, and two old bulbs left to support each lead, and when replanting set the plant in the centre of the receptacle, having the base of the bulbs just below the surface of the compost.

One point to which I attribute much ultimate success with these Orchids is to tie the bulbs to neat sticks inserted firmly in the compost, for if these long top-heavy growths are left to themselves they sway about with every touch, and prevent the plant from getting a firm hold on the compost. For soil use a mixture of osmunda fibre and sphagnum moss, these being well chopped up and used in a damp state.

The bulbs cut off previous to repotting can be laid on some damp moss

in an odd corner, where, if lightly sprayed occasionally, they will emit growths and then can be potted up later. Another method is to insert them in well-drained pots of silver sand and moss, but both methods are equally effective.

Personally I do not care for the system of growing Dendrobes in small pans and suspending them from the roof, as they dry up so quickly, and if at any time the grower is pushed for time they are apt to be forgotten, when the plants invariably suffer.

Unless the sun is very bright the less the blinds are used the better, and if those Orchids which are in flower are removed to a cooler and drier house, shading will probably, during the first part of this month, be only needed about midday. Taken generally, Intermediate house Orchids do not need nor like anything approaching the amount of shade necessary for those belonging to the Cool division.

SUGGESTED ADDITION.

DENDROBIUM THWAITESIÆ.—This magnificent hybrid is one of the best of this genus, and merits extensive cultivation. It is a cross between Ainsworthii and Wiganiæ, and flowered in 1903. It is very free-flowering, and possesses a good constitution. The blossoms are usually produced in May, and are of a deep orange yellow, with a large area of reddish purple in the lip, forming a pleasing contrast. During its growing season a light moist position at the warmest end of the house should be given, but after the new bulbs are completed, and until the flower buds are well developed, a cooler and drier temperature is needed, though, in common with all hybrid Dendrobiums, it does not need the severe rest and drying, practised in the culture of the species.

ORCHIDS AT CHELTENHAM.

THE Establishment of Messrs. Cypher & Sons has long occupied an honoured position amongst present-day trade collections, and some notes upon a few of the good things recently seen may be of interest to readers of the *Orchid Review*.

The nursery comprises about thirty houses, in which all manner of stove and greenhouse plants are cultivated, ten being solely given up to Orchids. On entering a large span-roof house, a large batch of Cypripedium aureum virginale and C. a. Surprise attracted the eye, and among other sturdy plants of this genus Mrs. Godman, Miss Louisa Fowler, Euryades New Hall Hey variety, and some pretty examples of Queen of Italy must be noted. Large specimen plants of Læliocattleyas are grown on the central staging, and amongst those in flower were a good dark L.-c. bletchleyensis,

a secondary hybrid of L.-c. Cappei of a dazzling orange hue, and a superb Brassocattleyæ Maroniæ. A nice batch of Sophrocattleya Wellesleyæ, with crimson flowers of large size was very striking, as was also a collection of Angræcum citratum.

A large span-roofed house contains a good collection of all the best varieties of Lælia anceps, and some late-flowering plants of Calanthe Bryan and Wm. Murray were making a grand display. Cypripedium Sladdenii was represented by several well-bloomed examples, while Zygopetalum crinitum was especially pleasing by reason of its delicious scent.

A long and low house is chiefly devoted to Cypripedium insigne Sanderæ, but one noticed in flower some vigorous plants of Cymbidium Alexanderi, Pauwelsii, and one of their parents, C. insigne, whose long spikes of pink flowers are very showy.

A high structure follows, containing many grand specimens of Angræcum sesquipedale, many showing for bloom, and a large collection of Phalænopsis, of which excellent forms of Stuartiana and Sanderiana are now in their full beauty, and an exceptionally large flower of P. amabilis Rimestadiana.

Messrs. Cypher have long been noted for the excellence of their Dendrobiums, and on entering the house devoted to their culture one was greatly struck by the robustness of all the occupants, even the smallest seedlings were all making sturdy bulbs. Among the most noteworthy were D. nobile Perfection, Berkley's variety, of large size, burfordiense with dark blotches on the lateral sepals, the pale Balliæ, D. Ainsworthii, and the beautiful deep yellow D. Thwaitesiæ. Two plants of the rare Aërides Vandarum were in bloom, and are remarkably beautiful.

In another house devoted to Cypripediums, the majority were just potted up, and were growing well in their new compost, giving ample evidence of affording a wealth of bloom when their season comes round. A complete collection of Lycaste Skinneri is grown here, much variation existing, one form bearing deep almost scarlet mottling on the lip, another a distinct yellow tinge, whilst there were some good examples of the pure white variety alba. Cœlogyne intermedia, raised by Mr. Cypher, was again in bloom, and very pretty it is. Odontoglossums and Odontiodas receive considerable attention, and among the latter a pretty hybrid from Cochlioda vulcanica and Odontoglossum Pescatorei should develop into a beautiful hybrid.

Besides growing quantities of the showier Orchids, Mr. Cypher takes great interest in the culture of botanical species, a very extensive collection being assembled. Mention must be made of the curious Bulbophyllum siamense and Careyanum, both large specimens in teak baskets, and of Pleurothallis Roezlii with its blackish purple flowers.

C. ALWYN HARRISON.

NEW HYBRIDS.

LÆLIOCATTLEYA Goldilocks (C. Harrisoniana × L. Cowanii.—A remarkable hybrid, bearing a short raceme of numerous deep golden yellow flowers, and thus most resembling the former in habit, and the latter in the size and colour of the flowers. It is a striking thing. Sent by O. O. Wrigley, Esq., Bridge Hall, Bury (gr. Mr. Rogers).

LÆLIOCATTLEYA AVOCA (C. Trianæ × L. Latona).—A promising hybrid, having lilac-purple sepals and petals, the latter with a broad median purple band at the apex, and the lip intense crimson-purple, with two deep yellow bands on the disc. Sent by H. T. Pitt, Esq., Rosslyn, Stamford Hill (gr. Mr. Thurgood).

ODONTIODA COLMANII (O. Bradshawiæ × Odontoglossum amabile).—A striking hybrid, which has almost reverted to the Odontoglossum type, recalling a heavily-blotched O. eximium, though the Odontioda influence can be traced in the details of the lip and column. The flower is of fine shape, with broad white segments, heavily blotched with violet-purple. Exhibited by Sir Jeremiah Colman, Bart. (gr. Mr. Collier), R.H.S., March 24th, 1914.

ODONTIODA FUSCIMIUM (Odontioda St.-Fuscien × Odontoglossum eximium).—Flowers dark red throughout, except for the yellow disc, and most resembling the Odontioda parent in shape. Raised in the collection of R. G. Thwaites, Esq., Chessington, Streatham Hill.

ODONTOGLOSSUM NEWLINGII (cirrhosum × Ossulstonii).—A very pretty hybrid, most like the former in shape, and heavily blotched with dark purple on a white ground. Raised in the collection of R. G. Thwaites, Esq., Chessington, Streatham Hill.

CYPRIPEDIUM JEZEBEL (Arthurianum pulchellum × Mrs. Wm. Mostyn). —A handsome hybrid, having the dorsal sepal covered with large purple-brown blotches on a light ground, and the petals broad and very undulate, the latter showing the Fairrieanum influence. Raised by Lt.-Col. Sir George L. Holford, Westonbirt (gr. Mr. Alexander).

CYPRIPEDIUM REDWING (G. F. Moore × Charlesianum var. Hannibal.) —A large and handsome hybrid, having a very round dorsal sepal, with numerous purple blotches on a light ground, and broad purple-red spreading petals. Exhibited by Lt.-Col. Sir George L. Holford, Westonbirt (gr. Mr. Alexander), R.H.S., March 10th, 1914.

CYPRIPEDIUM SATYR (Hera × Beryl Holford's var.).—A fine hybrid, having very large purple-brown blotches on the dorsal sepal, which is green with a white margin, and very broad petals, in which the villosum influence is paramount. Exhibited by Lt.-Col. Sir George L. Holford, Westonbirt (gr. Mr. Alexander), R.H.S., January 27th, 1914.

ORCHIDS FLOWERED AT KEW IN 1913.

THE last issue of the *Kew Bulletin* contains an interesting list of Orchids which flowered in the collection last year, compiled by Mr. C. P. Raffill. The author remarks:—

"The collection of Orchids cultivated under glass is well-known for its richness in types and for the large number of rare and little-known species it contains. The year 1913 has been remarkable on account of the large number of species, belonging to 137 distinct genera, which have flowered in the collection. A careful record has been kept of each plant which has flowered during the year, and from this we find that the only plant of Cirrhopetalum Mastersianum has flowered on six occasions, Dendrocolla Pricei, a new species, and Kefersteinia graminea on three, and quite a number of other plants have flowered twice during the year. A few fine specimen plants have also flowered profusely, the best of these being: Eria hyacinthoides with 34 racemes, Eulophiella Elisabethæ with 11 racemes, Vanda suavis with 14 racemes, Cœlia macrostachya with 6 racemes, Pleurothallis Roezlii with 31 racemes, and Miltonia candida with 32 racemes, bearing 274 flowers. Lycaste Deppei bore 54 flowers; L. gigantea 16 flowers; Cirrhopetalum robustum 7 umbels of flowers, and Cattleya Portia had an inflorescence of 13 flowers."

The list is much too long to repeat, occupying nearly four pages. It includes all the genera that have flowered during the year, but only those species are mentioned which have been exceptionally fine or which are of particular interest on account of their rarity.

ORCHIDS IN SEASON.

A FLOWER of another form of Læliocattleya Swanboroughii (see page 58) is sent from the collection of Mrs. Sheppee, Holly Spring, Bracknell. In this case the yellow of the L.-c. Andromeda parent is much more pronounced, especially in the large amount of yellow on the lip. Mr. Swanborough remarks that it is another seedling from the same batch, and quite similar to the first in habit, but entirely different in shape and colour. It will be interesting to watch the development of the batch.

A flower of the handsome Odontoglossum waltonense Rosslyn var. is sent from the collection of H. T. Pitt, Esq., Rosslyn, Stamford Hill, by Mr. Thurgood. It has deep yellow flowers, with brown blotching on the sepals and lip, but the petals entirely unspotted. Læliocattleya Ophir Rosslyn var. is a handsome deep yellow variety with a little purple on the front of the lip. Three Cypripedium seedlings are also enclosed. C.

Oneita (Lathamianum × Ophir) chiefly shows the influence of C. Spicerianum and C. exul, that of C. villosum and C. Boxallii, which should be present (C. Ophir is exul × Calypso), not being traceable. C. Ella (Lathamianum × Charlesianum) also shows most of the C. Spicerianum character. The parentage of the other is not known, but it is undeveloped and may be recognised when it flowers again.

Two very distinct forms of Odontoglossum percultum are sent from the collection of R. G. Thwaites, Esq., Chessington, Streatham. One was raised in the collection, and has numerous small spots at the base of the sepals and petals, and the markings of the lip much like the O. Rolfeæ parent. The other was purchased, and has the sepals and petals regularly blotched with purple. Both are good in shape and should be taken care of.

ORCHID NOTES AND NEWS.

THREE meetings of the Orchid Committee of the Royal Horticultural Society will be held at the Royal Horticultural Hall, Vincent Square, Westminster, during April, on the 7th, 15th, and 21st, the second meeting date being on a Wednesday, in connection with a special Daffodil Show to be held on that and the following day. The Committee will meet at the usual hour, 12 o'clock noon.

The Manchester and North of England Orchid Society will hold meetings at the Coal Exchange, Manchester, on April 16th and 30th. The Committee meets at noon, and the exhibits are open to inspection of members and the public from 1 to 4 p.m.

R.H.S. SCIENTIFIC COMMITTEE.—The following references to Orchids exhibited at the meetings of the Committae are taken from the Official Report (continued from vol. xxi., page 383) :—

February 10th, 1914 :—

ODONTOGLOSSUM SP.—Mr. Rolfe exhibited on behalf of Mr. H. S. Goodson, of Fairlawn, Putney, a rare species of Odontoglossum from Peru. Mr. Rolfe took a specimen to examine and report upon it.

ODONTONIA × LUCILIÆ.—A plant of this new hybrid was submitted by the Orchid Committee. It was raised from seed of Odontoglossum cirrhosum fertilised by pollen of Miltonia spectabilis Moreliana. It has apparently proved difficult to raise a cross the other way, and the result has given a remarkable purple flower. A Certificate of Appreciation was unanimously recommended to Messrs. Charlesworth, the raisers.

February 24th : Odontoglossum angustatum.—Mr. R. A. Rolfe reported that the Odontoglossum shown at the last meeting by Mr. H. S. Goodson, of Fairlawn, Putney, was probably a form of Odontoglossum angustatum,

Lindl. It had rather shorter segments and a less-toothed crest, but there are several imperfectly known species described by Reichenbach in this group (a group of only slight importance in the garden). The present plant may belong to one of these, but Mr. Rolfe could not quite make it fit any of them. More distinct things, he says, have been referred to O. angustatum, and he considers it should be placed there for the present.

SLUGS AND WOODLICE.—These pests are often troublesome in Orchid houses, and various baits are laid about and examined periodically with a view to keeping their numbers down. A method that has been recommended to us is, paint thin pieces of board, a few inches in diameter, with a mixture of flour and beer, and lay them face downwards in suitable spots, looking them over every morning and destroying such marauders as are found there. The bait should be renewed as often as necessary and is said to be very efficient.

ORCHID PORTRAITS.

CATTLEYA DRAPSIANA MCBEAN'S VAR.—*Orch. World*, iv. p. 132, fig.

CATTLEYA PERCIVALIANA.—*Horticulture*, 1914, pp. 253, 258, fig.; *Orch. World*, iv. p. 140, fig.

CATTLEYA TRIANÆ VAR. HYDRA.—*Gard. Chron.*, 1914, i. p. 159, fig. 72.

CYPRIPEDIUM AUREUM VIRGINALE.—*Journ. Hort.*, 1914, i. p. 237, fig.

CYPRIPEDIUM DESDEMONA.—*Orch. World*, iv. p. 126, fig.

MILTONIA BLEUANA.—*Journ. Hort.*, 1914, i. p. 277, fig.

ODONTIODA ZENOBIA.—*Gard. Chron.*, 1914, i. p. 226, fig. 101.

ODONTOGLOSSUM COLOSSUS.—*Gard. Chron.*, 1914, i. p. 158, fig. 71.

ODONTOGLOSSUM ROSSII MAJUS.—*Horticulture*, 1914, pp. 357, 363, fig.

ODONTONIA LUCILIA.—*Orch. World*, iv. p. 125, fig.

SACCOLABIUM GIGANTEUM.—*Orch. World*, iv. p. 136, fig.

SOPHROCATTLEYA WELLESLEYÆ WESTONBIRT VAR.—*Gard. Mag.*, 1914, p. 207, fig.

ANSWERS TO CORRESPONDENTS.

[*Orchids are named and questions answered here as far as possible. Correspondents are requested to give the native country or parentage of plants sent. An* ADDRESSED *postcard must be sent if a reply by post is desired (abroad, reply postcards should be used). Subjects of special interest will be dealt with in the body of the work*]

We have again to thank several esteemed correspondents for records of hybrids and flowers, some of which have had to be postponed, but are being dealt with.

Received.—Th.P., J.C., J.T.B.-P., H.G.A., J.P., F.D., J. O'B., T.W.G., E.R., C.P.

Photographs received with thanks.—T.W.G., C.P., H.J.C.

Catalogues received.—Messrs. Hassall & Co., Chase Side, Southgate, N., a comprehensive priced list of Orchids, species and hybrids.

Book Catalogue.—We have received from Messrs. W. & G. Foyle, Charing Cross Road, London, W.C., a Catalogue of Agricultural Science books, including Gardening, Orchids, &c.

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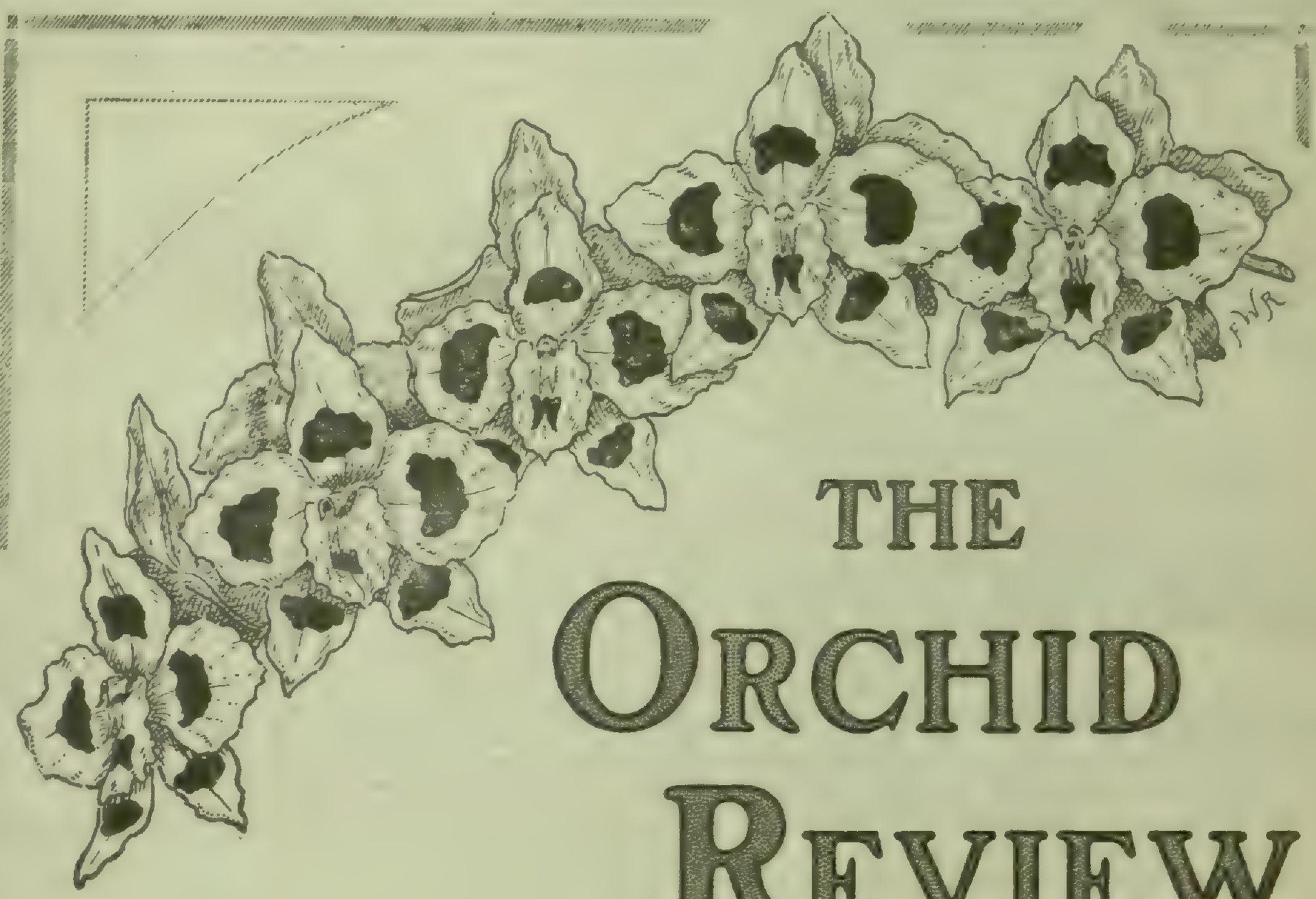

THE ORCHID REVIEW

Edited by R. ALLEN ROLFE, A.L.S.

CONTENTS:

	PAGE
Amateur's Collection	139
Answers to Correspondents ...	160
Book: Review of C. Alwyn Harrison, *Commercial Orchid Growing* ...	158
Calendar of Operations for May ...	141
Charlesworth's Catalogue for 1914 ...	132
Cymbidium glebelandense	131
Cymbidium l'Ansonii...	132
Disa chrysostachya	140
Dendrobium nobile, a peloriate ...	137
Dendrobiums from Gatton Park ...	157
London Botanical Congress	133
New Hybrids	158
Odontioda Clive	136
Odontoglossum Scottianum var. Mogul	145
Odontoglossums, raising seedling ...	138
Orchid Notes and News	159
Orchid Portraits	160
Orchids in season	155
Our Note Book	129
Satyrium Bolusii	144
Societies	146
American Exhibitions	154
Manchester and North of England Orchid	152
Royal Horticultural	146

ILLUSTRATIONS.

Dendrobium nobile, a peloriate ...	137
Odontioda Clive	136
Odontoglossum Scottianum var. Mogul	145

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The Orchid Review

VOL. XXII. MAY, 1914. NO. 257.

OUR NOTE BOOK.

THE event of the coming month is the Great Spring Show of the Royal Horticultural Society, to be held at the Royal Hospital Gardens, Chelsea, from May 19th to 21st. The Temple Show was for many years the Mecca to which all faithful Orchidists made their annual pilgrimage, and now that the event has been transferred to a more commodious site, which formed the venue of the highly successful Royal International Horticultural Exhibition two years ago, we anticipate another magnificent display of Orchids and a large attendance. The materials seem to become increasingly numerous as the years roll along, and we can only hope that the fates will again be propitious. We will not anticipate further, and the event will be fully dealt with in our next issue.

But there is an earlier event of the greatest possible interest, and one that has been looked forward to for a much longer period, namely, the opening of the Reichenbachian Herbarium. It seems hardly credible that a quarter of a century has passed away since the death of the illustrious Professor whose memory has been clouded by an act of his own which is happily unique in scientific annals, namely, the sealing up of his Herbarium against his contemporaries and successors for a period of twenty-five years after his death. This act was well described by the *Gardeners' Chronicle* at the time as an ungenerous attempt to paralyse the scientific study of Orchids in this country, and it was clearly foreseen that it would render future work peculiarly laborious and perplexing.

The embargo on the Herbarium will be removed on May 6th, but this only means that the work of arranging it can then be commenced, and we believe that some time must elapse before the specimens are available for reference. Their present condition, from the very nature of the case, is problematical, but we have been assured that when received proper steps were taken for their preservation from the ravages of damp and insects, so

might have been written to-day, though, of course, he could not forsee the that no anxiety need be felt in this respect. The extent of the collection may be inferred from the following note which appeared at the time (*Garden*, 1890, i. p. 16) :—

REMOVAL OF PROFESSOR REICHENBACH'S COLLECTIONS.—We learn from the German horticultural journals that the collections of this celebrated Orchidist have just left the Botanic Gardens of Hamburg to be placed in the Imperial Museum of Vienna. No less than three days were occupied in bringing his collections to the railway station, and they filled four large waggons. These collections were in 59 cases, of which 28 contained the dried specimens and 33 the library; 134 large boxes were filled with various materials, and 1,149 packets of printed notes and manuscripts accompanied the specimens of dried Orchids.

In an official report which appeared at the time we find the number of sheets is estimated at 420,000, though it is not stated how many of them are Orchids.

The opening of the Herbarium will be watched with the greatest curiosity, as it will afford a key to the solution of a large number of interesting questions, some of which were indicated in articles which appeared in our last volume (pp. 273-278, 299-301). An answer to some of them may soon be forthcoming.

The question of hybrid Nomenclature is again to the fore, partly because of the necessity of an agreed scheme in connection with the R.H.S. Registration of Hybrid Orchids, and partly in connection with the International Botanical Congress to be held in London next year, and the fact that notices of subjects requiring discussion have to be submitted so long beforehand. Both are, of course, primarily due to the steady accessions of new hybrids that appear meeting by meeting, and have to be dealt with under a set of rules that are inadequate to the purpose and not altogether in agreement, as pointed out in a succeeding article (pp. 133-135) to which attention is particularly called. It is desirable that the question should not remain in its present unsatisfactory condition any longer than necessary, and to this end we invite suggestions on the subject.

It is interesting to find (see pp. 101-104) that the Rules of Hybrid Nomenclature were formulated so long ago and by such a distinguished hybridist as Dean Herbert, and perhaps the point would have been more generally appreciated if they had not been tucked away in an article on the genus Hippeastrum in a Monograph of the Amaryllidaceae. Herbert had certainly very enlightened views on the subject, and some of his expressions

enormous development of the subject of which we are now witnesses. He narrowly missed being the pioneer of Orchid hybridisation, for his experiments were only limited by his failure to get the seeds to germinate. And he remarked: "Cross-breeding among Orchidaceous plants would perhaps lead to very startling results, but, unfortunately, they are not easily raised by seed." Nine years later Calanthe Dominyi flowered for the first time, and we have travelled far since then. But what would our collections be like to-day without hybrid Orchids?

CYMBIDIUM GLEBELANDENSE.

A STRIKING Cymbidium from the collection of G. Hamilton-Smith, Esq., Finchley, was exhibited at the R.H.S. meeting held on February 24th last, under the name of Cymbidium Cooperi, and was described at page 94. It is the natural hybrid between C. insigne and C. Schrœderi which was mentioned at page 308 of our last volume, and Mr. Coningsby remarks that it was recognised by Mr. Sander at the meeting in question. The plant had previously been divided and half of it purchased from Messrs. Sander, and grown on. It did not occur to us at the time to look at the list of artificial hybrids, but we have since found that the cross has been raised in the collection of J. Gurney Fowler, Esq., and was exhibited at a meeting of the R.H.S. held on January 3rd, 1911 (*O.R.*, xix. p. 51), so that the latter name must be superseded. Another plant was exhibited at the meeting held on April 15th, and is recorded on page 149 as C. glebelandense var. roseum, and Mr. Coningsby, who has forwarded flowers of it, states that both it and C. Cooperi came out of the same batch of imported C. insigne. The two are, however, distinct, the latter having a much shorter, more slender scape, and smaller flowers, the segments well veined with rose, and the lip more like C. Schrœderi in shape and markings, though not in colour. Again, Cymbidium J. Davis, which received an Award of Merit from the R.H.S. on February 4th, 1913 (*O.R.*, xxi. p. 93), resembles C. Cooperi in its tall scape and in colour, in fact Mr. Coningsby has seen both, and regards them as identical. We thus appear to have both natural and artificial hybrids between C. insigne and Schrœderi, and some differences the significance of which is not yet clear, unless recrossing with the original parents has taken place. It is said that C. insigne, Schrœderi, giganteum, Ballianum, and C. Parishii var. Sanderæ all grow in the same district, and although we have only direct evidence at present that the two former grow intermixed no surprise need be felt if other natural hybrids should make their appearance. We should like to see flowers of the original C. glebelandense, which appears to have been undeveloped when first shown.

R.A.R.

CYMBIDIUM I'ANSONII.

AT the R.H.S. meeting held on April 21st last a plant of Cymbidium Mandaianum was exhibited by Messrs. W. B. Hartland & Sons, Ardcairn, Ballintemple, Cork, and quite confirms the view expressed two years ago (*O.R.*, xx. p. 167), that it is a form of the rare C. I'Ansonii. When the latter appeared in 1900 (*O.R.*, viii. pp. 191, 209, fig. 34), we suggested that it might be a natural hybrid between C. Lowianum and C. Tracyanum, but this has not been borne out by experiment, for Messrs. Hartland have raised a hybrid from C. Tracyanum × Lowianum, and have sent flowers to Kew, together with a six-flowered spike of C. Mandaianum, and the two are certainly not identical. In C. I'Ansonii (and C. Mandaianum) the front lobe of the lip is ovate, and there is a solid zone of colour in front and a median line, all recalling C. Lowianum, except that the colour is buff instead of crimson, and the ground colour white with light yellow margin to the side lobes. The sepals and petals are greenish, striped and slightly suffused with red-brown. The hybrid has a broader front lobe to the lip, with a reflexed undulate margin, and the ground colour is yellow with large crimson blotches near the margin, a median line, and a few smaller spots. The sepals and petals are more distinctly striped with red-brown on a more yellow ground. C. I'Ansonii remained unique for a good many years, but in April, 1913, Messrs. Sander exhibited a plant said to have been introduced from Annam (*O.R.*, xxi. p. 156), and it may be that it is a wild species after all, and that its rarity and the fact that it appeared with C. Lowianum has been misleading. C. Tracyanum appeared in a somewhat similar way, and was at first thought to be a natural hybrid, but is now known to be a species, and its habitat has been recorded.

R.A.R.

CHARLESWORTH'S CATALOGUE OF ORCHIDS for 1914, which we have just received, is a handsome production of 96 quarto pages, including a selection of species and hybrids of the widest possible extent, with prices. We note with satisfaction that the names are given in accordance with the International Rules of Nomenclature, Brassocatlælia, Sophrocatlælia, Brassocattleya Veitchii, &c. The parentage of hybrids is also given. The Catalogue contains an interesting souvenir of the Royal International Horticultural Exhibition held at Chelsea, in May, 1912, in the shape of an enlarged photographic illustration of the magnificent group of Orchids, 70 feet long, which gained Sir George Holford's Cup for the best trade group, the Lambeau Cup for the best collection of hybrid Orchids, and a Large Gold Medal. The illustration is a folded plate 3½ feet long.

THE LONDON BOTANICAL CONGRESS.

A NOTICE of the International Botanical Congress to be held in London from May 22nd to 29th, 1915, was given at page 360 of our last volume. A second circular shows that the Program of work deals largely with fossil and Cryptogamic botany (for which subjects Committees and Sub-Committees have been appointed), with discussions of motions relating to points not settled by the preceding Congresses. It is remarked that the revision of the Rules of Nomenclature occupied three Congresses, at Paris, Vienna, and Brussels, and it is highly desirable that the work should be completed in London, and botanists are requested to examine carefully the points which still require consideration and to formulate propositions to this end.

A supplement to the Rules, based on propositions submitted, will be issued before January next, and a later circular will supply information on the internal arrangements of the Nomenclature Section of the Congress.

The following is a copy of the proposition that has been submitted for consideration :—

SECTION V.—NAMES OF HYBRIDS AND HALF-BREEDS (MULES).

Our knowledge of hybrids has increased enormously during the last decade, and as the rules governing their nomenclature are out of date, and in some cases contradictory, I propose that Section V. of the Vienna Rules be entirely recast, incorporating some of the amendments made at Brussels, as follows :—

Hybrids arise through the intercrossing of distinct species, and are common in certain groups of plants, both in gardens and in a wild state, the latter chiefly arising through insect agency where allied species grow intermixed. Hybrids may occur between species of the same genus or of different genera, and if fertile they may recross with their parents or with other species, in some cases with those belonging to different genera. Crosses between varieties of the same species are not hybrids, and do not come withing the limits of this section.

(*a*) PRIMARY HYBRIDS.—Hybrids between species of the same genus, or presumably so, are distinguished by a formula (*e*) and, whenever it seems useful or necessary, by a name. All hybrids obtained by crossing the same two species, or their varieties, must bear the same specific name (*f*), any distinct forms being indicated by the addition of varietal names (*g*).

(*b*) BIGENERIC HYBRIDS.—Hybrids between species of two different genera receive a generic name formed by combining the generic names of the two parents, or portions of them, into a single word, composed as far as possible so that the names of the two parents entering into the

combination are easily recognisable. It is followed by the sign ×, and a specific name (*f*). The name is written as a single word, and without a hyphen. Abbreviation is necessary except in the case of short words. Examples: Læliocattleya (Cattleya × Lælia), Sophrocattleya (Cattleya × Sophronitis), Odontioda (Cochlioda × Odontoglossum).

(*c*) MULTIGENERIC HYBRIDS receive a conventional generic name, preferably that of a distinguished man, to which is added the termination *ara*. A distinct name is required for each different combination of genera, and all combinations between them, in whatever way intercrossed, will bear the same name. Examples: Vuylstekeara (Miltonioda × Cochlioda), Lowiara (Brassolælia × Sophronitis). As an exception, the names of the trigeneric hybrids, Brassocatlælia and Sophrocatlælia, already in use, are retained. The generic name is followed by the sign ×, and a specific name (*f*).

(*d*) SECONDARY AND MORE COMPLEX HYBRIDS.—Hybrids (when fertile) recrossed with their parents or with other species or hybrids give rise to secondary or more complex hybrids, and are dealt with under the same rule as primary hybrids (*a*), forms derived from the same combination receiving the same specific name (*f*), and variations being indicated by varietal names (*g*).

(N.B.—This rule may have to be subsequently modified. Secondary hybrids of identical specific composition may be obtained in different ways. For example, a hybrid containing Cypripedium barbatum (1), insigne (2), Spicerianum (3), and villosum (4), can be obtained by crossing either C. × Ashburtoniæ (1 × 2) with C. × Lathamianum (3 × 4), C. × Eyermanianum (1 × 3) with C. × nitens (2 × 4), or C. × Harrisianum (1 × 4) with C. × Leeanum (2 × 3). It is this fact and the increased amount of segregation seen among secondary hybrids that proclaims their essential distinctness as a class from primary hybrids. It is probable that natural hybrids which show a large preponderance of one of the specific parents are in many cases recrosses with that parent, as the phenomenon is well know among artificial hybrids).

(*e*) FORMULA OF PARENTAGE.—The formula consists of the names of the two parents in alphabetical order, connected with the sign × and placed between brackets. When the hybrid is of known experimental origin the formula should be made more precise by the addition of the sign ♀ after the name of the seed-bearing parent.

(*f*) SPECIFIC NAMES OF HYBRIDS.—The specific name of a hybrid may be expressed in Latin or in any language that is written in Roman characters. It should consist of a single word or of two short words that can be connected by a hyphen.

(*g*) VARIETAL NAMES OF HYBRIDS must be written in some language

with Roman characters, the use of Latin being only authorised when it expresses the character or quality of the plant, as nanus, albus, maculatus, or when it harmonises with a descriptive specific name, as Cypripedium nitens var. Wrigleyi. In all other cases classical or vernacular names should be used. They should be expressed as far as possible in a single word, but the employment of not more than three words is permitted as a maximum. Such names should not be translated when transferred to another language.

(*h*) HYBRIDS DESCRIBED AS SPECIES.—Hybrids that were originally described as species should be transferred as soon as their real status is discovered, and the sign × should be placed before the specific name, or of the oldest name when more than one name has been used.

(*i*) TRANSFERS.—When the parents of a hybrid are transferred to another genus the name of the hybrid follows, and is subject to the rules of priority or others applicable to species under similar conditions.

(*k*) PUBLICATION.—A new hybrid is considered published when a name is given in accordance with the rules, together with the formula of parentage and a short description or figure, and is recorded in some work or periodical that is sold or circulated in the usual way. Descriptions may be drawn up either in English, French, German, Italian, or Latin. Publication in a dated horticultural catalogue is valid, but it is desirable that it should also be published in periodical horticultural journals. The exhibition of a hybrid at a horticultural meeting does not secure publication unless also properly recorded.

R. A. ROLFE.

There are three serious discrepancies between the Vienna and Brussels rules which it is desirable should be eliminated:—

(1) The Vienna Rules provide that the specific name of a hybrid shall be subject to the same rules as names of species, and the modification made at Brussels that they should come under the rule for varieties—which permits the use of three words as a maximum—destroys the simplicity of the Linnean binomial system and gives rise to all manner of inconsistencies.

(2) The provision that in the formula the names of the parents shall be given alphabetically eliminates the element of uncertainty, for the seed parent is unknown in the case of natural hybrids, and in many of those raised artificially, while many others have been raised both ways.

(3) The provision in the Vienna Rules that generic hybrids shall be referred to the parent genus that comes first in the alphabetical series would refer certain hybrids to a genus to which structurally they do not belong, as Epicattleya and Chondropetalum, while the limits of many natural genera would be completely obscured. It is quite unworkable.

ODONTIODA CLIVE.

THE annexed figure represents the handsome Odontioda Clive, which was exhibited at the R.H.S. meeting held on April 7th last by Mrs. Norman Cookson, Oakwood, Wylam (gr. Mr. H. J. Chapman), and received an Award of Merit. The parentage, unfortunately, was unrecorded, so that we cannot at present say from what particular combination it was derived, but one might suggest a comparison with O. Sybil (p. 59). The shape is excellent, and in some respects recalls Odontioda Bradshawiæ Cookson's var., while the broad, square lip suggests some Odontoglossum in which the

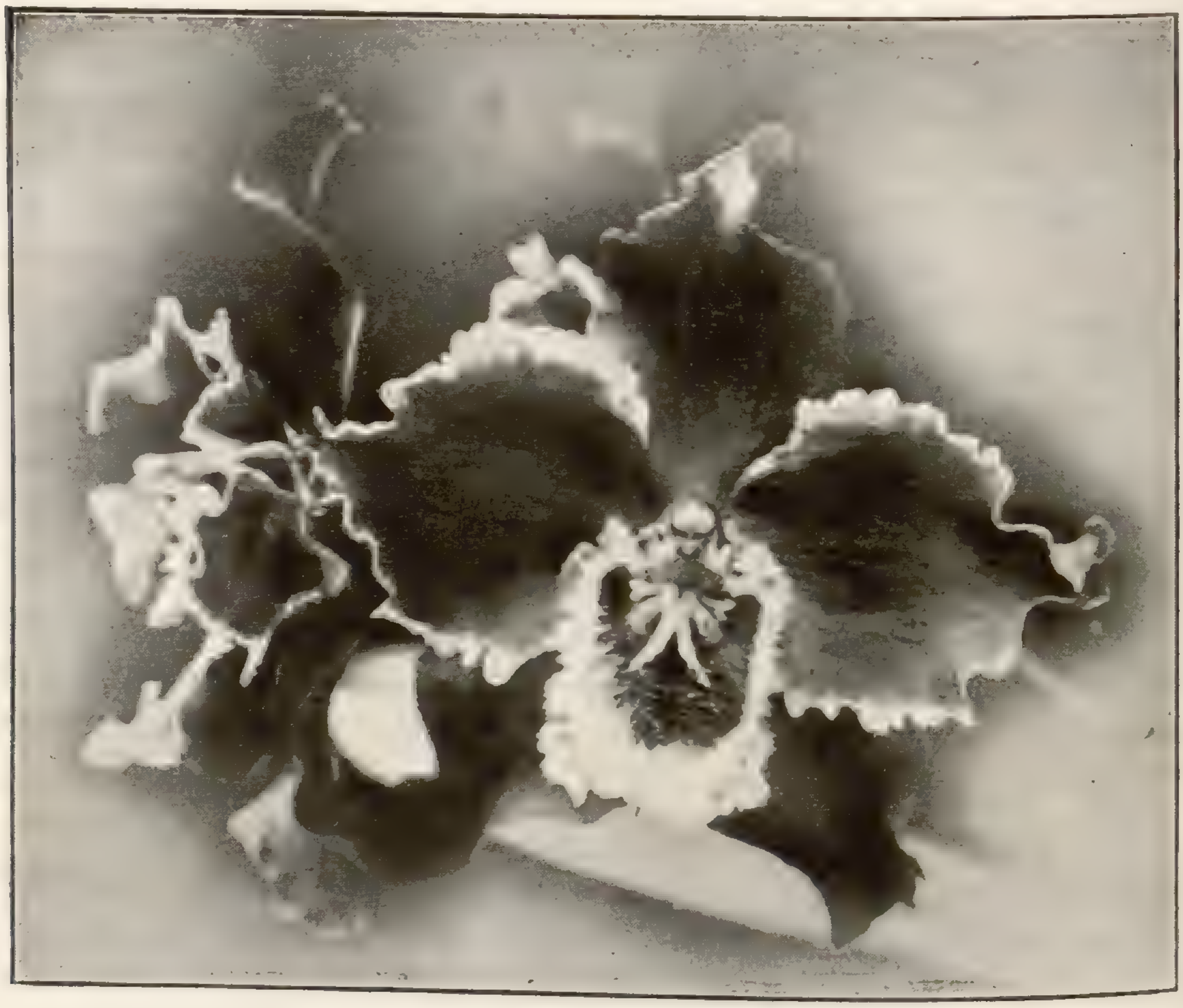

Fig. 17. ODONTIODA CLIVE.

influence of O. triumphans is paramount, possibly O. Vuylstekei. It would be interesting to know whether Mr. Chapman has made such a cross. The sepals and petals are for the most part suffused with dark-red purple, the former having a little yellowish white at the apex, and the latter a broad margin of similar colour, while the lip has a zone of dark purple right round the well-toothed yellow crest, and a very broad pale margin and apex, with a number of light streaks all round. The petals and lip are prettily fringed. It should develop into a fine thing when the plant becomes stronger. For the photograph we are indebted to Mr. H. J. Chapman.

A PELORIATE DENDROBIUM NOBILE.

A VERY curious Dendrobium has been sent from the collection of F. H. Moore, Esq., Royal Infirmary, Liverpool, which is represented in the annexed figure from a photograph by Mr. F. W. Rolfe. Mr. Moore writes: "Herewith I send another curiosity from among my plants; a flowering bulb of Dendrobium nobile (labelled D. n. Sanderianum) bearing normal flowers, and others coloured as in var. Cooksonianum! I believe this plant flowered last year but showed no peculiarity, and I have other plants of the same variety without." The bulb, as will be seen in the figure, bore three inflorescences, the one on the left-hand side of the bulb having both

Fig. 18. A PELORIATE DENDROBIUM NOBILE.

the flowers normal, while both the racemes (one single-flowered) on the right-hand side have the broad petals and basal maroon blotch as in Cooksonianum, a curious case of bilaterality. It is not identical with var. Cooksonianum, but represents a similar condition operating on a different variety, which is very near Sanderianum, though we think not quite as dark in colour. If one could imagine a similar condition operating on D. n. virginale we should expect the much broadened petals without the dark blotch. As in Cooksonianum, it represents a lip-like condition of the petals, and probably indicates a division of the staminodial influence of the lip

between all the three segments of the inner whorl, for the column and anther are normal. It is curious that this condition should operate only on one side of the bulb. It will be interesting to watch the behaviour of the plant next year, for D. n. Cooksonianum is constant.

Mr. Moore concludes: "I am looking forward next season to the flowering of some seedlings I have raised between D. nobile giganteum and another variety of D. nobile, with the purple colour disposed in blotches entirely on the backs of the sepals and petals, and the lip normal. It will be interesting to see if these features are preserved or revert."

RAISING ODONTOGLOSSUM SEEDLINGS.

MUCH interest has always been taken by the *Orchid Review* in the raising of Odontoglossums from seed. Having recently been very successful in this branch of Orchidology, the following brief note may be helpful to those who still find it a matter of some difficulty.

The preparation of a suitable seed bed is first and foremost a necessity. My plan is to pot a plant which will not need disturbance for some time, surface with a good layer of the best obtainable sphagnum moss, and after the plant is quite re-established—a matter of a few weeks—the seed should be scattered evenly and sparsely on the surface. Henceforth it is merely a matter of keeping the compost moist, the temperature as near 50° Fahr. as possible, and shading from strong light. Moisture is afforded by spraying with a Muratori's Hand Sprayer, but where the grower does not possess this handy machine, a good plan is to dip the plant in a pail of tepid rain water just to below the rim, holding it there for several minutes.

When the seedlings are large enough to handle, they then should be pricked out into pans containing a mixture of finely-chopped polypodium fibre and best sphagnum, removing them from the seed bed by means of a pointed stick, the end of which should be moistened with the tongue, when the tiny seedlings will adhere more easily. The after culture will consist merely in treating the seedlings as is usual for Odontoglossums, plus a little additional care.

It should be remarked that the plant selected for the seed bed should be an Odontoglossum, and should be in a good state of health. This method of seed-raising applies also to Odontonias, Odontocidiums, and Miltonia hybrids.

In conclusion, I may perhaps suggest that failure is often caused by the seed being improperly ripened or not good, for I have known many cases where healthy pods have formed, but on examining seed under a microscope it has been found worthless. This is especially the case where crosses of wide structural differences are intercrossed, particularly with Odontonias and Oncidium crosses.

C. ALWYN HARRISON.

THE AMATEUR'S COLLECTION.

By C. ALWYN HARRISON.

INCREASED atmospheric moisture and ventilation will now be the order of the day, whilst the blinds will need lowering about 10.30 a.m. and will probably be better not raised again until about four p.m., as the power of the sun is now great, and scorching of the leaves will ensue where too little shade is afforded. Towards the middle of this month the roof glass should be painted with a mixture of flour and water, or a weak solution of Hall's Distemper will answer the purpose equally well. The main object of painting the glass is to obviate the necessity of keeping the blinds down too long, for this mixture on the glass will not exclude light, but at the same time will effectively prevent any damage being done to the plants by the sun's rays in the early morning and afternoon, whereas a risk of scorching might be run if only the shading by the blind at midday were resorted to.

Damping down will be usually required about 10 a.m., midday, and about 3 p.m. After this final syringing it will be found a good plan to close all the ventilators for about an hour, opening as required, and according to the weather, after the superfluous moisture has had time to condense. All plants should be carefully examined daily, and water be given freely to all in bud and active growth.

During this month many of the beautiful Cattleya Mendelii, C. Mossiæ, and innumerable hybrids will be in full growth, and showing for flower, and the latter should have their leading bulbs neatly staked, when the blossoms will show off to better advantage. Whilst staking these Orchids time should be spared for sponging their leaves, and, if needed for a show, to place a layer of green sphagnum moss on the surface of the compost, which will greatly improve the appearance.

Cattleya Schrœderæ will now have passed out of flower, and any plants needing renewal of compost should be immediately attended to, working on the lines advocated in the March article.

Imported Dendrobiums will now have plumped up and are beginning to emit roots. They should therefore be placed in pots, nearly full of crocks, with a little chopped moss and osmunda fibre over their roots, and a humid atmosphere always maintained around them, affording water directly merely when needed.

Renanthera Imschootiana is also a great favourite for summer groups, its long spikes of brilliant scarlet spider-shaped blooms being very attractive, as is also the length of time a spike will last in perfection. These Orchids should be well inured to the light, so as to enable them to

develop their spikes to their full beauty, and should have the leaves frequently sponged, for they are sometimes attacked by mealy bug, which, when once it has become settled in the distichous growths, is difficult to eradicate, and where this is present the plants should be sprayed with a solution of soft soap and nicotine, or with some approved insecticide, afterwards syringing them with pure rain water.

Importations of the beautiful blue Vanda cœrulea have recently been arriving in quantity, and where any imported pieces have begun to show signs of re-awakening should be potted up and treated as advised for Dendrobiums, shading them for the present from strong sun.

Zygopetalum Mackayi, crinitum, and Gottianum are excellent subjects for an amateur's Intermediate house, and these may now require repotting. The usual method should be carried out, using a compost of loam, osmunda fibre, and moss, whilst plants freshly potted should be kept slightly drier, sprayed overhead, usually daily, and shaded from sun. The coolest end of the house forms a suitable position for these useful winter-flowering Orchids.

SUGGESTED ADDITION.

SOPHROCATTLEYA DORIS.—For an amateur's Cattleya house this beautiful Orchid is most suitable, and its brilliant scarlet flowers, with the handsome yellow colouration on the lip, render it very attractive. It was raised some years ago from Sophronitis grandiflora and Cattleya Dowiana aurea, and is still one of the best of these bigeneric hybrids. Being rather a dwarf grower, it should be suspended near the roof glass. Give sufficient water when in active growth to keep the soil damp, but less when at rest, and overhead-syringing must not be practised. Pans are preferable to pots for its accommodation, and re-panning is needed usually every alternate year, a fine mixture of well-chopped Polypodium fibre and sphagnum moss being the best rooting medium. The flowers are of fair size, and continue long in perfection.

DISA CHRYSOSTACHYA.—A plant of this remarkable Cape Disa was exhibited at the R.H.S. meeting held on April 21st last, by Messrs. Flory & Black, Orchid Nursery, Slough. It is allied to D. polygonoides, Lindl. (*Bot. Mag.*, t. 6552), but has a very much longer spike of deep orange-yellow flowers; the spike in this case measuring nearly a foot long. It is seldom seen in cultivation, but a specimen is preserved at Kew which flowered at the Royal Botanic Gardens, Glasnevin, in April, 1890. The species is rather widely diffused, extending from the eastern parts of Cape Colony to the Transvaal and Natal, and occurring on grassy hills and damp places from about 2000 to 4000 feet elevation, and occasionally higher. It is well figured in the recently issued volume of Bolus's *Orchids of South Africa* (vol. iii. tt. 68, 69).

R.A.R.

CALENDAR OF OPERATIONS FOR MAY.

By T. W. BRISCOE, Late Foreman of Messrs. Veitch's Hybridising Department.

GENERAL REMARKS.—Plants in each division are now growing freely, and every inducement should be given them to build up strong healthy pseudobulbs. The temperatures for the next few months should be slightly raised, and will be higher than at any other period of the year. The summer-flowering section of Cypripediums may be neatly staked as their flower scapes develop, and the Sobralias that are producing flowers may be given a little weak liquid manure if they are in a pot-bound condition. Numerous Cattleyas and Miltonia vexillaria in variety will be making a nice display, and it behoves every grower to take care of the distinct C. Lawrenceana, which at present is none too plentiful. Odontoglossum grande, Insleayi, and their allies will soon begin to root from the new shoots, and can be repotted at this season if required, while the same remarks apply to Dendrobium Phalænopsis and D. formosum. The Odontoglossum house must be kept cool, and if the weather is hot and dry the top ventilators should be opened with discretion during the day. In the Warm houses a little fire heat will be necessary through the night, but a sharp eye ought to be kept on the stoker to prevent excessive heat in the day time. Each division should be vaporised at intervals to hold in check insect pests, and a dirty plant ought not to be passed twice in any collection.

CYMBIDIUMS.—These handsome Orchids are now extremely popular with most growers, thanks to the introduction of the beautiful C. insigne, which has been the means of creating several new and distinct hybrids. With a few exceptions all the species and hybrids produce spikes of fine showy flowers, while the general aspect is imposing and stately, which renders them ideal subjects for a corridor, or centre stage in a house of fairly large dimensions. The roots are thick and fleshy, and as they are freely produced, ample pot-room must be provided. They need a more retentive rooting medium than is given to most Orchids, and good results can be obtained from a mixture of turfy fibrous loam and partly-decayed oak leaves, to which is added a moderate quantity of crushed crocks. When repotting, sufficient space must be left below the rim for watering purposes, as Cymbidiums enjoy plenty of moisture when in robust health and growing freely. There is no necessity for annual disturbance at the root, but when such an operation is decided upon it should be carried out soon after the spikes are removed. They are not too exacting in regard to temperature, but for preference the Intermediate house should be chosen, although C. Lowianum will thrive equally well at the warmest end of the

cool division. Those with pendulous scapes, of which C. Devonianum and C. tigrinum may be cited as examples, are best cultivated in pans, and suspended about two feet from the roof glass. The idea of placing Cymbidiums in a high temperature has been proved erroneous, and more air should be admitted than was usually the case. Red-spider will sometimes attack the foliage, and scale will congregate around the pseudobulbs; the former can be destroyed by sponging, and the latter must be removed directly they make their appearance. A diligent search ought to be made at the time of repotting for scale insects.

PHALÆNOPSIS.—Where a representative collection of these glorious Orchids exists, it is best to devote a house or division to their culture, but if the number of plants do not warrant this, a shady part of the stove or Warm house should be chosen. They may be grown in baskets, ordinary flower-pots, or teak-wood cylinders, which must be well supplied with drainage. A large quantity of soil is not needed, and the top layer should be clean sphagnum moss, which ought to be kept growing and be renewed directly it gets into a bad condition. The collar or base of the leaves can be raised slightly above the rim of the receptacle, and the compost worked between the roots. After being disturbed water must be afforded with great care, for if the soil be saturated the roots will decay and the leaves damp off. A position near the glass should be selected, and the plants must be shaded from all strong sunlight. Throughout the growing season a genial moist atmosphere is necessary, and any examples that were not repotted may be liberally supplied with water. The leaves of Phalænopsis are occasionally disfigured with the "spot" disease, which is usually brought about by excessive moisture at the base and improper ventilation. In regard to the latter, no hard and fast rule can be laid down, but air must be admitted either from the bottom or top ventilators, whenever it can be done without chilling the plants.

PHAIUS.—Both the species and hybrids of this genus are worthy of cultivation, and well-grown examples always prove useful for arranging with other plants, even when not in flower. They bloom at different periods of the year, so it will be quite obvious that all the plants are not repotted at the same time. This is generally carried out when commencing their new growth, and the compost employed is principally good fibrous loam, with a little peat or fibre and sphagnum moss. It should be used in a lumpy condition, and a few crushed crocks may be added with advantage. Liberal and frequent waterings are necessary during their period of activity, and when the plants have filled their receptacles with roots an occasional application of weak liquid manure will be beneficial. When the season's growth is completed, only enough water need be given to keep the soil moist. The Intermediate or Cattleya house is usually chosen, but they

ought not to be exposed to strong sunshine during the hottest months of the year.

The two finest species are P. simulans and P. tuberculosus, and the former has participated in a splendid series of hybrids, which flower from March till May. Little difficulty is experienced in growing the hybrids, but the species quoted do not respond very readily to the conditions prevailing in our Orchid houses. They hail from Madagascar, and require a few degrees more warmth than the other members of the genus. P. simulans is often tied to a raft with the base placed in a pot or pan, and very little, if any, loam is needed in the compost. Where growers happen to possess a few plants it is advisable to try them in different positions, for up to the present their cultural requirements are not fully understood. A few years after being imported they gradually deteriorate, and eventually die, a fate which overtakes some other Madagascar Orchids; for example, the scarlet-lipped Cymbidium rhodochilum, which in all probability is only represented by dried specimens in this country at the present time.

MEXICAN LÆLIAS.– Where these Lælias were not given fresh rooting material earlier in the year, the present month is a suitable time to do any necessary repotting or top-dressing. Pans or teak-wood baskets may be used as receptacles, which should be amply drained. The compost consists of osmunda or AI fibre, with a sprinkling of chopped sphagnum moss. No Orchid will succeed unless it possesses a fair amount of live roots, but with L. anceps and its allies the general treatment, such as ventilation, temperature, light, and resting plays a most important part in their successful culture. A separate house is often set apart for this class of plant, but a good substitute is the lightest end of the Cattleya division, where they may remain during the growing season, and receive all the light possible short of scorching the foliage. A moist atmosphere is essential, and the plants can be sprayed overhead whenever the weather is suitable. It is advisable to give the house a thorough damping down when the blinds are removed early in the afternoon, closing all the ventilators at the same time. These may remain closed until the evening, when an inch or so of ventilation will allow any superfluous moisture to escape. Water should be freely given when the roots have taken possession of the soil, and an average temperature of 65° F. maintained, but with sun heat these figures can be exceeded and no harm will accrue. The principal factors in the culture of Mexican Lælias are plenty of light, air, and moisture during their active period, and a decided rest after the pseudobulbs are fully matured. One of the probable causes of failure is that the plants are not sufficiently rested, and are invariably started into growth too early in the year.

ODONTOGLOSSUM CITROSMUM.—This Mexican Odontoglot will require attention at the base directly the flower scapes are removed. It should be

placed in the Cattleya house in close proximity to the light, in order to thoroughly mature the new bulbs, otherwise it is somewhat shy in producing its pendulous spikes of pale rose flowers. Plenty of water must be given while in active growth, but when this is finished a long rest is taken, under cooler and drier conditions.

ANGULOAS.—Although only a few species are known, they are all useful Orchids to cultivate, particularly the yellow Anguloa Clowesii, which usually attracts the attention of visitors at the Chelsea Show. Many will be showing their flower scapes, and any necessary repotting must wait until they are over, but those that may not be flowering can be repotted without further delay. A portion of fibrous loam should be added to the usual compost, and the plants grown in the Intermediate house. For a few weeks after disturbance water should be moderately applied, and the young growths ought to be shaded from direct sunlight, but as maturity is reached they must receive all the light possible.

LYCASTES are for the most part vigorous-rooting subjects, and therefore need ample pot room. The cultural requirements are much the same as with Anguloas, but the popular L. Skinneri will also succeed at the warmest end of the Cool division. Heavy shade is not recommended, and an airy atmosphere suits them best. A good supply of water is essential throughout the growing season, and when at rest the soil should be kept just moist.

LYCASTE DYERIANA.—This distinct and rare Lycaste differs from the usual type in regard to its culture. It should be grown in a downward position, similar to the well-known Cattleya citrina, and only a small quantity of soil is needed. It should be suspended near the roof glass in the Intermediate division.

SATYRIUM BOLUSII.—Under the formula Satyrium coriifolium × carneum is figured (*Bolus Orch. S. Afr.*, iii. t. 36) a remarkable natural hybrid Satyrium, whose history is thus given: "Described from three living specimens, which were found by Mr. Bodkin growing widely apart but near and among plants of S. coriifolium and S. carneum. In the specimen drawn the bracts were spreading and in the other two reflexed and narrow. The spike is stouter than is usual in S. coriifolium. Colour of the flowers dull orange, nearly salmon colour shading to red on the crest and spurs; young bracts dull red, older greenish-brown or pinkish-brown with green veins; scape red-brown." The locality is sandy flats near Retreat Station, on the Cape Peninsula. It is probably the plant mentioned at p. 112 of our nineteenth volume as having been found at Diep River, and which seemed to be a hybrid between the two species mentioned. S. Guthriei, originally described as a species (Bolus, *l.c.*, i. t. 21), is also believed to be a natural hybrid (see *O.R.*, i. p. 269).

R.A.R.

ODONTOGLOSSUM SCOTTIANUM VAR. MOGUL.

THE very striking Odontoglossum here figured is a hybrid from O. oakwoodiense × armainvillierense, which was exhibited at the R.H.S. meeting held on April 7th last by Lt.-Col. Sir George L. Holford, K.C.V.O., Westonbirt (gr. Mr. H. G. Alexander), and received a First-class Certificate under the name of Odontoglossum Mogul. The flower is of good shape, and the ground colour of the clearest white, forming a broad band round the large solid claret-purple blotch which adorns each segment and sets the flowers off to great advantage. The petals and lip are very prettily

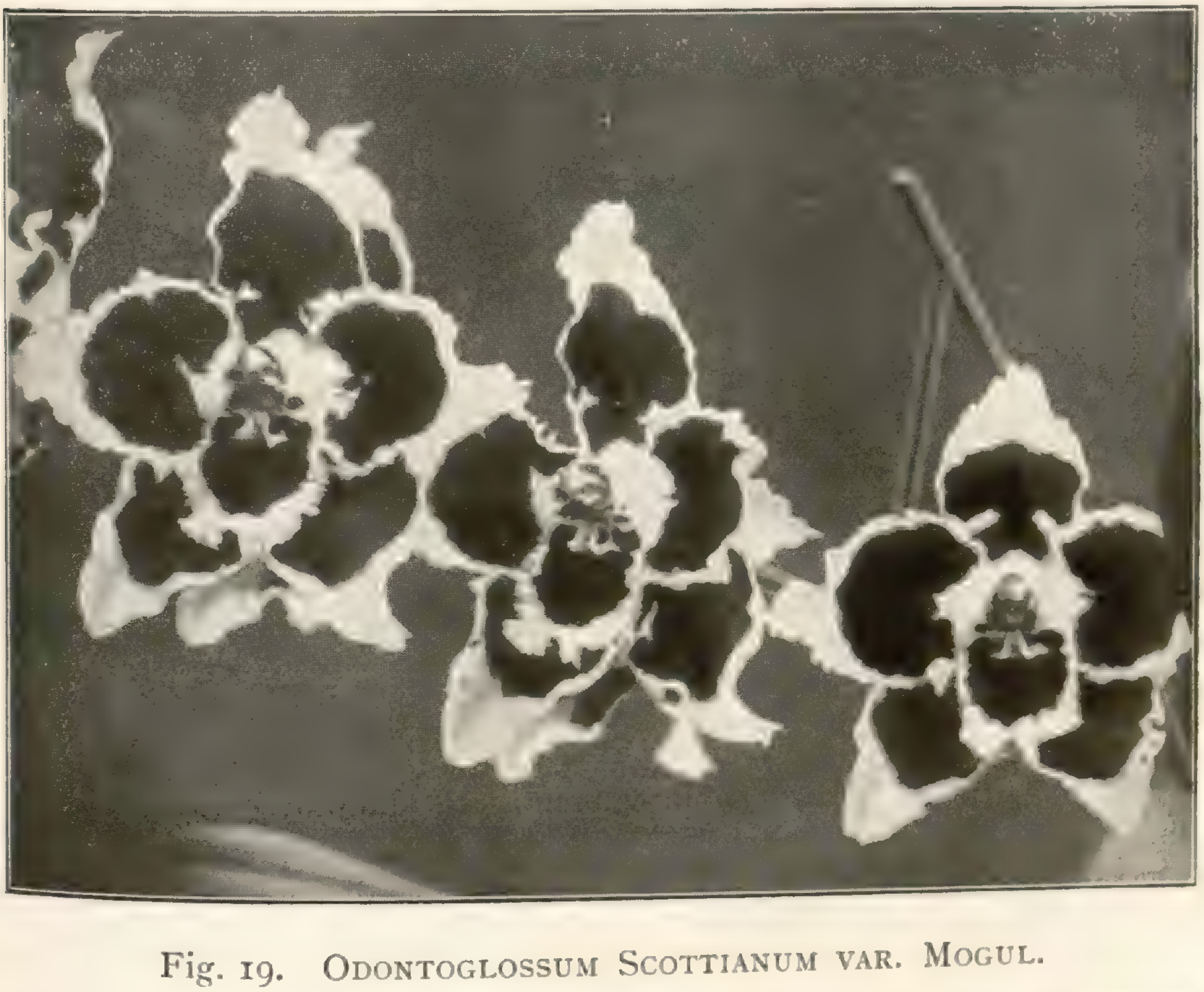

Fig. 19. ODONTOGLOSSUM SCOTTIANUM VAR. MOGUL.

fringed, and altogether the plant is a very charming acquisition. It appears to be a form of O. Scottianum, this having been derived from the same cross. O. oakwoodiense is supposed to be either a form of O. Wilckeanum or some other natural hybrid in which O. luteopurpureum is represented, and this, when crossed by Messrs. Charlesworth with a finely-blotched O. armainvillierense, produced a batch of seedlings showing the most extraordinary variation. Some resembled O. armainvillierense, others were more like a large plain O. Pescatorei, while some intermediate forms had the blotching inclining towards the brown of O. luteopurpureum. One was

like a plain white O. crispum of good shape, with a trace of O. luteo-purpureum in the lip, and another had the ground colour of the lip clear yellow, with a tinge of the same colour in the sepals and petals, thus showing a reversion to the ground colour of O. luteopurpureum (*O.R.*, xxi. p. 139). In the handsome form here figured the influence of O. armain-villierense, and of the grandparent, O. Pescatorei, are very marked, especially in the details of the lip and column. It is a gem of the first water.

SOCIETIES.

ROYAL HORTICULTURAL.

THE first meeting of the month was held at the Royal Horticultural Hall, Vincent Square, Westminster, on April 7th, and produced a very fine display of Orchids, the awards consisting of seven medals, two First-class Certificates, three Awards of Merit, and one Cultural Commendation.

Orchid Committee present:—J. Gurney Fowler, Esq. (in the Chair), and Messrs. J. O'Brien (hon. sec.), H. J. Chapman, F. Sander, R. G. Thwaites, F. J. Hanbury, F. M. Ogilvie, T. Armstrong, A. McBean, J. Charlesworth, J. Cypher, W. H. Hatcher, H. G. Alexander, A. Dye, E. H. Davidson, W. H. White, W. Bolton, Gurney Wilson, R. A. Rolfe, and Sir Harry J. Veitch.

Mrs. Norman Cookson, Oakwood, Wylam (gr. Mr. H. J. Chapman), received a Silver Flora Medal for a choice group of Odontiodas and Odontoglossums raised in the collection, noteworthy among them being Odontioda oakwoodiensis Futurist, well blotched with red on a white ground and broadly margined with violet, O. Sibyl purpureum, claret-red with white markings, O. Antonio (see New Hybrids, p. 158), O. Doris, O. Bradshawiæ Cookson's var., Odontoglossum crispum Phœbe, having the flower almost entirely dark claret-coloured, and two very distinct forms of O. Titania, one being dark the other mostly yellow, and others.

Lt.-Col. Sir George L. Holford, K.C.V.O., Westonbirt (gr. Mr. H. G. Alexander), also received a Silver Flora Medal for a choice group, including two beautiful specimens of Cattleya Schrœderæ The Baron, C. Magnet (Mossiæ × Whitei), Sophrocatlælia Sunloch (L.-c. Goldfinch × S.-c.-l. Danæ), reddish orange with some veining on the lip, the handsome Brassocattleya The King, Cymbidium Parishii var. Sanderæ bearing two fine spikes of blush-white flowers, with red-blotches on the lip, and others.

R. G. Thwaites, Esq., Chessington, Streatham (gr. Mr. Hannington), received a Silver Banksian Medal for a small group, including the brilliant Sophrocattleya Thwaitesii, and a few good hybrid Odontoglossums and Dendrobiums.

E. F. Clark, Esq., Evershot, Dorset, sent flowers of an Odontioda, and of a hybrid between Cattleya Trianæ and Lælia Boothiana.

Sir Jeremiah Colman, Bart., Gatton Park, Reigate (gr. Mr. Collier), sent a choice group, including the pretty Pleione yunnanensis, the scarlet Odontioda Vuylstekeæ gattonensis, a good Odontoglossum Pescatorei album, Cœlogyne Sanderæ, Masdevallia Arminii, Pleurothallis Grobyi, Cymbidium I'Ansonii, and a good plant of Polystachya paniculata with four spikes of light red flowers.

Mrs. Meade King, Seven Elms, Druid Stoke, Bristol, sent for naming a flower of Schomburgkia Lueddemanniana (*Bot. Mag.*, t. 8427).

Major Lister, Warninglid Grange, Haywards Heath (gr. Mr. Johnson), sent a plant of Gongora quinquenervis.

F. M. Ogilvie, Esq., The Shrubbery, Oxford (gr. Mr. Balmforth), sent three well-flowered plants of Dendrobium Thwaitesiæ Veitch's var.

J. T. Bennett-Poë, Esq., Holmewood, Cheshunt (gr. Mr. Downes), sent two good plants of Cymbidium Lowianum, and Brassocattleya Maroniæ.

Pantia Ralli, Esq., Ashtead Park, Epsom (gr. Mr. Farnes), sent plants of Odontioda Vuylstekeæ and Brassocattleya langleyensis.

Messrs. Charlesworth & Co., Haywards Heath, staged a choice group, including a fine dark form of Phaius simulans, Cœlogyne Sanderæ with two spikes, Brassocattleya Veitchii Queen Alexandra, the yellow Brassocatlælia Joan, a dark form of Odontioda Brewii, Miltonia Hyeana, Polystachya paniculata, Læliocattleya Captain Percy Scott with striped flowers, other good Læliocattleyas, Odontoglossums, &c. (Silver Flora Medal).

Messrs. Sander & Sons, St. Albans, staged a fine group, including Lycaste Skinneri alba, with seven flowers, the striking Cœlogyne Lawrenceana, Acanthophippium sylhetense, some fine Cattleya Schrœderæ, C. Parthenia Prince of Wales, Odontioda Charlesworthii and keighleyensis, Dendrobium aggregatum and thyrsiflorum, Cymbidium amabile (Lowio-Mastersii × insigne), Læliocattleyas and Odontoglossums (Silver Flora Medal).

Messrs. Stuart Low & Co., Jarvisbrook, Sussex, staged a showy group, in which Dendrobium densiflorum, Brymerianum, Jamesianum, Wardianum and others were prominent, with fine forms of Cattleya Schrœderæ, Cymbidiums, Odontoglossums, Brassocattleyas, Oncidium pubes, and others (Silver Flora Medal).

Messrs. James Cypher & Sons, Cheltenham, staged a good group, including the handsome Phaius simulans, Arpophyllum giganteum, Dendrobium nobile virginale, D. ochreatum, D. superbum Huttonii, and some good Odontoglossums and Odontiodas (Silver Banksian Medal).

Messrs. Hassall & Co., Southgate, sent a small group, containing a few good Cattleya Schrœderæ, Læliocattleya Ballii, and the fine white Brassocattleya Menda.

FIRST-CLASS CERTIFICATES.

CATTLEYA TITYUS SHRUBBERY VAR. (Enid × Octave Doin).—A very fine form, having blush pink flowers of perfect shape, and the lip rose-purple in front of the rich yellow disc. Exhibited by F. M. Ogilvie, Esq., The Shrubbery, Oxford (gr. Mr. W. Balmforth).

ODONTOGLOSSUM MOGUL (oakwoodiense × armainvillierense).—A very striking hybrid, which is described and figured at page 145. Exhibited by Lt.-Col. Sir George L. Holford, K.C.V.O. (gr. Mr. H. G. Alexander).

AWARDS OF MERIT.

LÆLIOCATTLEYA AMABILIS VAR. FASCINATOR (L.-c. Fascinator albens × C. Lueddemanniana Stanleyi).—A very charming variety, having pure white sepals and petals, and a deep claret-purple lip with a pale margin. Exhibited by Messrs. Charlesworth & Co.

ODONTIODA CLIVE (parentage unrecorded).—A handsome hybrid, which is described and figured at page 136. Exhibited by Mrs. Norman Cookson.

ODONTIODA GRAIREANA SPLENDENS (C. Nœtzliana × O. Rossii).—A very fine form, having pale lilac-rose sepals and petals, blotched with orange-red, and the lip light rose with a yellow crest. Exhibited by M. H. Graire, Amiens, France.

CULTURAL COMMENDATION.

LÆLIOCATTLEYA TIGRIS (L. Cowanii × L.-c. Dominiana).—To Mr. H. G. Alexander, Orchid grower to Lt.-Col. Sir George L. Holford, K.C.V.O., for a splendidly-grown specimen, bearing two tall spikes of deep yellow flowers with the front of the lip claret-purple.

A meeting of the Orchid Committee was also held on Wednesday, April 15th, in connection with a Special Daffodil Show, to adjudicate upon Orchids submitted for certificate, when four Awards of Merit were given.

Orchid Committee present: De Barri Crawshay, Esq. (in the Chair), and Messrs. J. O'Brien (hon. sec.), Gurney Wilson, W. Bolton, S. W. Flory, J. E. Shill, J. Charlesworth, and T. Armstrong.

AWARDS OF MERIT.

MILTONIA VEXILLARIA LYOTH (vexillaria chelseiensis × v. memoria G. D. Owen).—A charming variety, with large rose-coloured flowers, and the disc of the lip bearing a large purple-crimson mask, from which extends a number of short radiating lines. Exhibited by Messrs. Charlesworth & Co., Haywards Heath.

ODONTIODA JOAN (O. Charlesworthii × Odontoglossum armainvillierense).—A brilliant crimson-red flower, with a yellow crest and some yellow markings on the lip. Exhibited by Messrs. Charlesworth & Co.

ODONTOGLOSSUM ELISSA (Edwardii × illustrissimum).—Much like O. Thompsonianum in shape, with broad purple segments, and the crest of the

lip yellow. Exhibited by Pantia Ralli, Esq., Ashtead Park, Epsom (gr. Mr. Farnes).

ODONTOGLOSSUM EXIMIUM DELL VAR. (armainvillierense × crispum).—A very fine form, having a large claret-red blotch and a few smaller spots on the segments, which have a broad whitish margin, while the lip is white, with a large red blotch in front of the yellow crest and a few small red lines. Exhibited by Baron Bruno Schröder, The Dell, Englefield Green (gr. Mr. J. E. Shill).

OTHER EXHIBITS.

De Barri Crawshay, Esq., Rosefield, Sevenoaks (gr. Mr. Stables), showed a fine form of Odontoglossum Crawshayanum.

Lord Grantly, Red Rice, Andover, showed Odontoglossum Zena (sceptrum × Harryanum).

G. Hamilton-Smith, Esq., Finchley (gr. Mr. Coningsby), showed Cymbidium glebelandense var. roseum, a hybrid between C. insigne and C. Schrœderi, and having the segments well veined with rose, and the lip most like the Schrœderi parent in shape (see p. 132).

Pantia Ralli, Esq., Ashtead Park, Epson (gr. Mr. Farnes), showed the handsome Cattleya Lueddemanniana Stanleyi, and Odontoglossum Pescatorei virginea, a large form blotched with violet-purple.

Messrs. Charlesworth & Co., Haywards Heath, sent the rare Angræcum fastuosum, Trichopilia Backhouseana, Odontoglossum crispum Albania, a home-raised seedling of great promise, and Brassocattleya Princess Elizabeth, a pretty hybrid between B.-c. Maronii and Cattleya Mossiæ.

Messrs. Sander & Sons, St. Albans, showed the pretty white Cattleya Gravesiana amabilis (Mossiæ Wageneri × Lueddemanniana).

The usual fortnightly meeting was held on April 21st, and produced a very fine display, no fewer than ten medals and four Cultural Commendations being given, with one First-class Certificate, and one Award of Merit.

Orchid Committee present: J. Gurney Fowler, Esq. (in the Chair), Messrs. J. O'Brien (hon. sec.), W. Bolton, Gurney Wilson, de B. Crawshay, W. H. White, A. Dye, W. H. Hatcher, H. G. Alexander, J. Cypher, J. Charlesworth, W. Cobb, F. M. Ogilvie, F. J. Hanbury, T. Armstrong, R. G. Thwaites, Stuart Low, R. A. Rolfe, S. W. Flory, and Sir Jeremiah Colman, Bart.

F. M. Ogilvie, Esq., The Shrubbery, Oxford (gr. Mr. Balmforth), received a Silver Flora Medal for thirteen splendidly-grown Odontiodas, including Bradshawiæ, Vuylstekeæ, and Charlesworthii (see also Awards), and a fine example of Brassolælia Veitchii.

H. T. Pitt, Esq., Rosslyn, Stamford Hill (gr. Mr. Thurgood), received a Silver Flora Medal for a fine group, including the striking Lycaste

gigantea, Nanodes Medusæ, Epidendrum Stamfordianum, Chondrorhyncha Chestertonii, Bulbophyllum galbinum, *Zygopetalum* Perrenoudii, Maxillaria Sanderiana and luteoalba, with some good Odontoglossums and Odontiodas, Cattleya Schrœderæ, Læliocattleyas, and others.

R. G. Thwaites, Esq., Chessington, Streatham Hill (gr. Mr. Hannington), received a Silver Banksian Medal for a pretty little group, including a fine example of Brassocattleya Leemanniæ, and a few good Odontiodas, Odontoglossums, and Dendrobiums, two of which are described under New Hybrids (p. 159).

Sir Jeremiah Colman, Bart., Gatton Park, Reigate (gr. Mr. Collier), staged a choice group, including two examples of the striking Cœlogyne Lawrenceana, Dendrobium Nestor, D. Brymerianum Gatton Park var., the brilliant scarlet Odontioda Vuylstekeæ Lady Colman, and Luisia Cantharis.

De Barri Crawshay, Esq., Rosefield, Sevenoaks (gr. Mr. Stables), sent good examples of Odontoglossum harvengtense, Titania, and Leonidas.

Lt.-Col. Sir George L. Holford, K.C.V.O., Westonbirt (gr. Mr. Alexander), sent Odontoglossum crispum Iolanthe, a very fine round white form with a cluster of violet blotches on the sepals and lip, and the brilliant Sophrocattleya Thwaitesii.

C. Kirch, Esq., Uplands Road, Hornsey, showed a well-grown specimen of Cœlogyne pandurata.

Messrs. Stuart Low & Co., Jarvisbrook, Sussex, staged a fine group, in which the showy Dendrobiums were well represented, including a fine example of the blue D. Victoria-Regina, other good things being Oncidium Marshallianum, Renanthera Imschootiana, Phalænopsis amabilis, Brassocattleyas, &c. (Silver Flora Medal).

Messrs. J. & A. McBean, Cooksbridge, staged a very showy group, including finely grown examples of Cattleya Mossiæ, Mendelii, and Schrœderæ, C. Lawrenceana with a spike of nine flowers, Læliocattleya Ballii and Ganymede, and a few good Odontoglossums, Odontiodas, and Masdevallias (Silver Flora Medal).

Messrs. Armstrong & Brown, Tunbridge Wells, staged a good group, containing some fine Odontoglossums, a blotched O. crispum bearing a spike of thirty-three flowers, Brassocattleya Veitchii splendens and other B. Digbyana crosses, Bulbophyllum barbigerum, Læliocattleya Mercia, Dendrobium signatum × Rolfeæ, with yellow flowers, D. nobile virginale, Cypripedium Venus Orchidhurst var., &c. (Silver Banksian Medal).

Messrs. J. Cypher & Sons, Cheltenham, staged a good group, including Oncidium concolor and Marshallianum, fine examples of Cattleya Mendelii and Schrœderæ, Dendrobium Jamesianum and fimbriatum oculatum, Vanda cœrulescens var. Boxallii, Masdevallia caudata and Heathii, Restrepia elegans, Chysis bractescens, &c. (Silver Banksian Medal).

Messrs. Flory & Black, Slough, staged a good group of Cattleya Schrœderæ and showy Læliocattleyas, the rare Disa chrysostachya (see p. 140), Epidendrum aurantiacum, Masdevallia bockingensis, a fine Odontoglossum Pescatorei, Disa Luna and sagittalis, Odontonia Lairesseæ, Brassocattleya Maroniæ × C. Mendelli, a pretty white form with a rosy blotch in the lip, &c. (Silver Banksian Medal).

Messrs. Sander & Sons, St. Albans, staged a good group, including Dendrobium densiflorum superbum, a particularly fine form, Trichopilia Hennisii and suavis, Bifrenaria Harrisoniæ pubigera, Acanthophippium sylhetense, Vanda suavis, Masdevallia Schlimii, the handsome Cattleya Clementinæ, Eulophia Saundersiana, Læliocattleyas, &c. (Silver Banksian Medal).

Messrs. W. B. Hartland & Son, Cork, staged a small group, including Cymbidium I'Ansonii (Mandaianum) with two spikes, C. Schrœderi, and a few Cattleyas, Cypripediums, and Brassocattleyas (Bronze Banksian Medal).

Messrs. Charlesworth & Co., Haywards Heath, staged a small group of choice things, including the fine Miltonia vexillaria Empress Augusta Victoria, Sophrocatlælia Niobe, Sophrolælia heatonensis, a good Odontoglossum crispum xanthotes with eleven flowers, Odontioda Elsie (C. Nœtzliana × Odontioda Charlesworthii), with red flowers, Odontoglossum Pescatorei Charlesworthii, and others.

Messrs. Hassall & Co., Southgate, sent a fine example of Cattleya Dusseldorfii Undine.

FIRST-CLASS CERTIFICATE.

ODONTOGLOSSUM MIRABEAU VAR. MASTIFF (mirum × Lambeauianum).—A remarkably fine form, having the greater part of the flower deep maroon-purple, irregularly margined with white, while the lip is white, heavily blotched with maroon. The spike bore five flowers. Exhibited by Messrs. J. & A. McBean.

AWARD OF MERIT.

ONCIDIODA COOKSONIÆ VAR. GRENADIER (C. Nœtzliana × O. macranthum).—An exceptionally dark form, the flowers being almost ruby-red in colour. The plant bore a long trailing spike. Exhibited by Pantia Ralli, Esq., Ashtead Park, Epsom (gr. Mr. Farnes).

CULTURAL COMMENDATIONS.

CŒLOGYNE PANDURATA ORCHIDHURST VAR.—To Messrs. Armstrong & Brown for a very vigorous plant, with a spike of thirteen large emerald green flowers, with black markings on the lip.

ODONTIODA DIANA.—To Mr. W. Balmforth, gardener to F. M. Ogilvie, Esq., for a very fine plant, bearing four panicles and over 170 flowers.

ODONTIODA MRS. F. M. OGILVIE.—Also to Mr. W. Balmforth, the plant bearing a compact panicle with sixty flowers, forming quite a picture.

PHAIUS WALLICHII SANDERIANA.—To Messrs. Sander & Sons, for a noble specimen, bearing three fine spikes about five feet high.

MANCHESTER & NORTH OF ENGLAND ORCHID.

At the meeting held at the Coal Exchange, Manchester, on March 26th the members of Committee present were: Z. A. Ward, Esq. (in the Chair), Messrs. J. Bamber, J. Cypher, A. G. Ellwood, J. Evans, A. Hanmer, W. H. Hatcher, J. Howes, J. Lupton, D. McLeod, W. J. Morgan, C. Parker, W. Shackleton, H. Thorp, G. Weatherby, and H. Arthur (Secretary).

A Silver-gilt Medal was awarded to J. Leemann, Esq., West Bank House, Heaton Mersey (gr. Mr. Smith), a feature of the group being an interesting collection of hybrid Cymbidiums in fine condition, with numerous Cattleyas, Cypripediums, Odontoglossums, &c., forming a very fine display.

Large Silver Medals were awarded to R. Ashworth, Esq., Newchurch (gr. Mr. Gilden), and A. Warburton, Esq., Haslingden (gr. Mr. Dalgleish), for fine miscellaneous groups.

Silver Medals were awarded to W. Thompson, Esq., Stone (gr. Mr. Howes); Col. J. Rutherford, M.P., Blackburn (gr. Mr. Lupton); Messrs. Cypher & Sons, Cheltenham, and Messrs. Sander & Sons, St. Albans, for good mixed groups.

A Bronze Medal was awarded to Mr. W. Shackleton, Highfield, Bradford, for a group of Cymbidiums, Odontoglossums, and others.

Interesting exhibits were staged by O. O. Wrigley, Esq., Bury (gr. Mr. Rogers), the group containing a very fine collection of Dendrobiums; R. le Doux, Esq., West Derby (gr. Mr. Fletcher); W. R. Lee, Esq., Heywood (gr. Mr. Branch); Messrs. Charlesworth & Co., Haywards Heath; Messrs. A. J. Keeling & Sons, Bradford, whose group contained the striking Chondrorhyncha Chestertonii; Messrs. Mansell & Hatcher, Rawdon; Mr. D. McLeod, Chorlton-cum-Hardy, and Mr. J. Evans, Lymm.

FIRST-CLASS CERTIFICATES.

Cymbidium Pauwelsii maximum, a full round flower, of good size and colour, and well marked on the lip, from J. Leemann, Esq.

Brassocattleya Vilmoriniana var Centaur (B.-c. Leemanniæ × C. Mossiæ), a huge, well-set flower, from W. R. Lee, Esq.

Odontoglossum Princess of Pless, a large, evenly marked flower of brilliant colour, from R. le Doux, Esq.

Odontioda Brewii Walton Grange var., a good round flower, very dark in colour, with flat lip, from Wm. Thompson, Esq.

Cattleya Warneri Ardenholme var., a large flower of good shape and colour, from Col. J. Rutherford, M.P.

AWARDS OF MERIT.

Cymbidium Pauwelsii vars. delicata and Andreana; Cattleya Enid excelsa, Brassocattleya Veitchii Leemann's var., all from J. Leemann, Esq.

Odontoglossum ardentissimum Phœbe and Dendrobium nobile Goliath, from Wm. Thompson, Esq.

Odontoglossum Nigger, O. crispum White Swan, from R. le Doux, Esq.

Odontoglossum Jasper Beardwood var., and Brassocattleya beardwoodiense (C. Empress Frederick × B. Digbyana), from Col. J. Rutherford.

Lycaste gigantea Ashlands var., from R. Ashworth, Esq.

Dendrobium superbum Rœbelenii giganteum, from Messrs. Mansell & Hatcher, Rawdon.

Brassocattleya Pocahontas Undine (B. Digbyana × C. Eldorado alba), from Messrs. Cypher & Sons.

The Secretary regrets to announce the death of Mrs. Wood, of Glossop, and J. J. Holden, Esq., of Southport, both old members, and exhibitors at the meetings of the Society for many years.

At the meeting held on April 16th, the members of Committee present were:—Rev. J. Crombleholme (in the Chair), Messrs. Ashworth, J. Bamber, J. C. Cowan, J. Cypher, A. G. Ellwood, J. Evans, A. Hanmer, J. Howes, A. J. Keeling, J. Lupton, D. McLeod, W. J. Morgan, C. Parker, W. Shackleton, H. Thorp, A. Warburton, Z. A. Ward, G. Weatherby, and H. Arthur (Secretary).

A Silver-gilt Medal was awarded to R. Ashworth, Esq., Newchurch (gr. Mr. Gilden), for a very fine miscellaneous group, in which Odontoglossums were particularly well represented.

A large Silver Medal was awarded to A. Warburton, Esq., Haslingden (gr. Mr. Dalgleish), for a fine group of Odontoglossums, Cattleyas, Cypripediums, &c.

Silver Medals were awarded to W. Thompson, Esq., Stone (gr. Mr. Howes); Messrs. Cypher & Sons, Cheltenham, and Messrs. Sander & Sons, St. Albans, for good mixed groups, the former containing a number of choice Odontoglossums, many of which gained awards.

Interesting exhibits were staged by O. O. Wrigley, Esq., Bury (gr. Mr. Rogers); W. R. Lee, Esq., Heywood (gr. Mr. Branch); Col. J. Rutherford, M.P., Blackburn (gr. Mr. Lupton); J. Leemann, Esq., West Bank House, Heaton Mersey (gr. Mr. Smith); A. J. Oakshott, Esq., Bidston, Birkenhead (gr. Mr. Findlow); R. le Doux, Esq., West Derby (gr. Mr. Fletcher); Mr. J. Birchenall, Alderley Edge; Mr. W. Shackleton, Highfield, Blackburn; Mr. D. McLeod, Chorlton-cum-Hardy; Messrs. Charlesworth & Co., Haywards Heath, and Messrs. A. J. Keeling & Sons, Bradford.

FIRST-CLASS CERTIFICATES.

Odontoglossum triumphans var. Royal, a large round flower, of good yellow ground and even markings; Odontioda Charlesworthii var. sanguinea, a large flower, of dark colour; Læliocattleya Vesuvius (bletchleyensis × Dominyana), a well set flower, of even colour with a brilliant lip; and Phaius tuberculosus, all from R. Ashworth, Esq.

Miltonia Bleuana albo-rosea var. Leeana, a very large flower of good colour; and M. vexillaria Lyoth magnifica, also a large flower with intense markings, all from W. R. Lee, Esq.

Læliocattleya Fred Boyle var. Kerchovæ, having large white flowers, Cymbidium Pauwelsii var. Ideal, with almost white sepals and petals and a well marked lip, both from John Leemann, Esq.

Odontoglossum illustrissimum var. purpureum, and O. eximium var. Brutus, both with brilliant colours and markings, from Wm. Thompson, Esq.

Odontoglossum Mrs. Phœbe Fletcher (eximium × amabile), a very large flower, with bright distinctive markings, from R. le Doux, Esq.

AWARDS OF MERIT.

Odontoglossum amabile var. Princess, O. Phœbe var. Brunette, O. harvengtense var. Emperor, O. excellens var. Goldcrest, O. eximium var. Nero, O. Adrianæ var. Brunum, all from Wm. Thompson, Esq.

Odontoglossum amabile Her Majesty, and Merle Dene var., both from A. J. Oakshott, Esq.

Odontioda Breweii var. auriferum, from R. Ashworth, Esq.

Brassocatlælia Joan, B.-c.-l. gloriosa (L.-c. Aphrodite × B. Digbyana), and Brassocattleya Veitchii Queen Alexandra Beardwood var., all from Col. J. Rutherford.

AMERICAN EXHIBITIONS.

THE issue of "Horticulture" for March 21st last contains an account of the Spring Flower Show of the Massachusetts Horticultural Society held in the Horticultural Hall, Boston, from March 12th to 15th.

The Orchids, which occupied quite a section in this hall were uncommonly good. Duncan Findlayson got a Silver Medal for his group, which was especially rich in Dendrobiums and Cymbidiums. F. J. Dolansky and E. MacMulkin held up the reputation of the commercial Orchid growers with two splendid displays, in which Cattleyas of great vigour predominated, MacMulkin being awarded a Bronze Medal. Wheeler & Co. got a Certificate of Merit for Phalænopsis leucorrhoda (Schilleriana × amabilis), and a similar honour went to E. B. Dane for Cattleya intermedia alba. G. W. Page exhibited Cypripedium acaule.

At the Spring Show of the Horticultural Society of New York, held a

fortnight later, the Orchid display is said not only to have been very extensive, but also very rich in novelties. Among the Julius Roehrs collection were such gems as Cymbidium Pauwelsii and C. insigne, Odontioda Bradshawiæ, O. Charlesworthii and O. Thwaitesiæ, Cypripedium Maudiæ variety non plus ultra, Læliocattleya Dominiana, Odontoglossum eximium, O. × Jasper, O. ardentissimum and O. Queen of Gatton. E. B. Dane showed a beautiful plant of Odontioda Bradshawiæ. Clement Moore had many fine things, such as a pure white Brassocattleya Maroniæ. The arrangement of colours in his exhibit was exquisite.

Clement Moore, Hackensack, New Jersey (gr. J. P. Mossman), was first for a collection staged for effect, also for plants and flowers in nine other classes, one of them being for 25 vases of cut flowers arranged for effect, while under Special Awards we find a Gold and Silver Medal and Certificate of Merit for groups of Orchids.

A. N. Cooley, Pittsfield, Mass., gained five first prizes and two seconds, also a Gold Medal awarded by the Society for the handsome Sophrocattleya Thwaitesii.

Mrs. B. B. Tuttle, Naugatuck, Conn. (gr. M. J. Pope), was awarded a Certificate of Merit for a new Læliocattleya, and the second prize for a Phalænopsis.

Ten other amateur growers also figure in the prize list for plants and cut flowers.

In the Commercial section for plants the competition was between three exhibitors, the Julius Roehrs Co., Rutherford, New Jersey, gaining eleven first and two second prizes, W. A. Manda, South Orange, New Jersey, four firsts and ten seconds, and Lager & Hurrell, Summit, New Jersey, two firsts and two seconds. The latter firm also made a very tasteful and original display in the non-Competitive section.

Cut flowers formed an important feature, and we find nine classes in both the private and Commercial sections, in the latter the best display arranged for effect being that of Joseph A. Manda, West Orange, New Jersey, while the Julius Roehrs Co. gained five first and two second prizes, W. A. Manda four firsts, and Max Schling, New York City, one first.

ORCHIDS IN SEASON.

A FLOWER of the handsome Sophrocattleya Thwaitesii is sent from the collection of R. G. Thwaites, Esq., Chessington, Streatham. The colour is brilliant rosy crimson, with much yellow on the lip and a dark crimson front lobe. The plant bore five flowers on two leads. A very dark form of Dendrobium chessingtonense was obtained by crossing its variety J. M. Black with var. cupreum, and the colour is rich orange yellow with

some maroon on the disc of the lip. A third flower is D. Ernestii (chessingtonense × Wiganiæ) a deep yellow form with a dark maroon disc.

Several handsome flowers are sent from the collection of O. O. Wrigley, Esq., Bridge Hall, Bury (gr. Mr. Rogers). Five handsome forms of Lycaste Skinneri show the widest possible variation, the variety hellemense being of a brilliant rose-purple. There is also a form of L. Imschootiana (Skinneri × cruenta), having yellowish unspotted sepals and petals, and the base of the lip dark maroon; also L. Tunstillii, which from the shape and very hairy lip we take to be a form of L. Luciani (Skinneri × lasioglossa). Cypripedium Jessie (Thompsonianum × villexul) has particularly broad segments and lip, and the petals are well spotted with brown on the basal half, with a few others on the base of the dorsal sepal, the broad margin being white. C. Symmetry (nitens magnificum × Thompsonianum) is also very promising, having a white dorsal sepal with confluent purple veins on the lower half, leaving very little green, and the petals and lip are suffused and veined with mahogany brown. Lælia Jongheana × Cowanii will be a form of L. Gwennie (*O.R.*, xii. p. 271), raised from the reverse cross, and has deep buff yellow sepals and petals with a tinge of purple, and a deep yellow crisped lip with slightly raised keels. The scape is two-flowered at present, and the characters of the pollen parent decidedly preponderate. Odontoglossum crispum Golden Queen is a handsome yellow form with maroon blotches on the sepals and petals. A twelve-flowered spike of a remarkable and beautiful form of Odontoglossum crispum is also enclosed, in which the dorsal sepal is exactly like the petals in shape and size and in having a very crisped margin, while the lateral sepals have crest-like appendages on the adjacent inner angles, and usually a cinnamon blotch near the apex, like the blotching on the lip. The lip and column are, however, normal, and the petals and dorsal sepal are unspotted.

Flowers of three Lælia cinnabarina hybrids are sent from the collection of W. Evans, Esq., J.P., Knighton Lodge, Leicester, by Mr. T. Cook, who states that they were raised in the collection. L. cinnabarina × Jongheana is a form of L. Sidneana (*O.R.*, 1907, p. 315), and has buff yellow flowers with a tinge of purple. L. cinnabarina × C. amethystoglossa is a form of Læliocattleya Monica (*O.R.*, 1903, p. 58), and has light yellow flowers with the front of the deeply three-lobed lip purple. The other is L.-c. Clarie (L. cinnabarina × C. Octave Doin), and has deep yellow flowers with the front lobe of the lip purple. It is a very promising thing.

Cymbidium Lowianum nanum, from the collection of F. J. Hanbury, Esq., Brockhurst, East Grinstead, is a peculiar dwarf form, producing short, three-flowered spikes and correspondingly short leaves. It is said to be constant in the dwarfed habit, but the flowers are quite normal.

DENDROBIUMS FROM GATTON PARK, REIGATE.

SEVERAL beautiful hybrids have been sent from the collection of Sir Jeremiah Colman, Bart., Gatton Park, Reigate, by Mr. Collier. D. plumosum (Cybele × signatum aureum) has retained most of the D. Cybele character, and all the segments are tipped with rose-purple, while the narrow disc of the lip is surrounded by a zone of deep yellow. D. Eleanor (Findlayanum × Rubens var. Othello) is a very fine light rosy flower, with an exceptionally broad maroon disc to the lip, while the variety Rosy Queen, from the reverse cross, is a little brighter in colour and the disc of the lip is barely half as large and bright maroon in colour. D. Bartelsianum (Wiganiæ × Wiganianum Gatton Park var.) is a charming blush white flower with two light rosy blotches on the lip's disc. D. Boundii var. Mrs. Alfred Rogers (Findlayanum × Hildebrandii) has rather narrow white sepals and petals, and the disc of the lip light yellow. D. Princess Patricia of Connaught (Wiganianum purpureum × Rubens) has light rose sepals and petals, and the front of the lip bright rose-purple. D. Phryne (Eva × signatum aureum) has buff yellow flowers of good shape, with a dark maroon zone in the throat of the lip, and recalls some form of D. Wiganiæ. Lastly may be mentioned two beautiful forms of D. Rubens, called rubescens, with uniformly light rose sepals and petals and a dark maroon disc to the lip, and Gatton Purple, not quite so dark and with a smaller maroon disc.

OBITUARY.

HENRY LITTLE.—This old and much-esteemed Orchidist passed away at his residence, Baronshalt, Twickenham, on April 14th, at the age of 81 years. Mr. Little was for many years a keen Orchidist, and we have several times had the pleasure of seeing his collection, in which Cattleyas, Cypripediums, Lycastes, and many other showy Orchids were well represented. Among his favourites may be mentioned the varieties of Lælia purpurata and Læliocattleya elegans. About three years ago, owing to failing health, he disposed of his collection, previous to which time he had been a subscriber to the *Orchid Review* from the commencement. For some years he was a member of the R.H.S. Orchid Committee. He was also much interested in photography, and we may mention that the two groups of certificated Odontoglossums figured at pp. 241, 305 of our second volume, were kindly taken by him for us. They now form a very interesting memento of his work. His name is commemorated in Cypripedium Littleanum (*O.R.*, iii. p. 209, fig. 8), a natural hybrid between C. Lawrenceanum and C. Dayanum from his collection.

REVIEW OF BOOK.

Commercial Orchid Growing. By C. Alwyn Harrison, F.R.H.S., pp. 132, with illustrations. London, The Lockwood Press, 1, Mitre Court, Fleet Street.

THIS work is intended as a treatise on Orchids for the Cut Flower trade, and the author remarks that considering the comparatively high prices that can be obtained from the sale of cut blooms of Orchids, and that there is at the same time a constant and growing demand for them, it seems strange that many of our large market florists do not devote at least one house for the purpose of cultivating a batch of some popular variety. He is convinced that there is a good opening in the cut flower trade for our market florists as a side line, if strict attention be paid to the important points of starting with sound healthy plants and growing only kinds which command a good market price. The work is divided into 15 chapters, showing the most suitable kinds to grow, the different houses, their structure and arrangement, and the proper treatment of their inmates, the adapting of existing houses to the purpose, and a monthly Calendar of Operations. The Orchids recommended as most suitable for cut flowers are Dendrobiums, Cypripediums, Cattleyas, Odontoglossums, and Oncidiums, with a few others that may be grown with them. The work supplies sound practical advice on a phase of Orchid culture that is becoming of increasing importance.

NEW HYBRIDS.

SOPHROCATLÆLIA DORILA (Sophrocattleya Doris × Lælia pumila.—Raised in the collection of R. G. Thwaites, Esq., Chessington, Streatham. Flowers about the size of S.-c. Doris, with very broad petals, and the colour warm purple. Several plants have flowered, and six or seven crosses have been raised from it.

ODONTIODA OTHELLO (Odontoglossum Othello × Odontioda gattonensis).—An interesting hybrid, having the sepals and petals heavily blotched with purple-brown on a light yellow ground, and the lip white with numerous purple blotches all round the yellow crest. Raised in the collection of Sir Jeremiah Colman, Bart., Gatton Park, Reigate (gr. Mr. J. Collier).

ODONTIODA VIVIENNE.—By some inexplicable mistake this name was printed Odontoglossum Vivienne at page 59. Readers are requested to make the correction.

ODONTIODA ANTONIO (O. Cooksoniæ × Odontoglossum Harryanum).—Raised in the collection of Mrs. Norman Cookson, Oakwood, Wylam, by

Mr. H. J. Chapman. Sepals and petals heavily blotched with warm brown, and thus most like a neat edition of the latter, with a modified shape and colour. Exhibited R.H.S., April 7th, 1914.

ODONTOGLOSSUM EDNA (Rossii rubescens ♀ × armainvillierense).—A very pretty hybrid, raised in the collection of R. G. Thwaites, Esq., Streatham. The flowers are lilac-rose, with numerous dark brown spots on the sepals and on the lower half of the petals, while there is a yellow area round the disc of the lip. Exhibited R.H.S., April 21st, 1914.

DENDROBIUM FREDERICKII (fimbriatum oculatum ♀ × Thwaitesiæ).—Flowers deep orange-yellow, with a maroon-brown disc to the well-fringed lip. Raised in the collection of R. G. Thwaites, Esq., Streatham. Exhibited R.H.S., April 21st, 1914.

ORCHID NOTES AND NEWS.

THE next meeting of the Royal Horticultural Society will be held at the Royal Horticultural Hall, Vincent Square, Westminster, on May 5th, when the Orchid Committee will meet at the usual hour, 12 o'clock noon.

The following meeting will be the great Spring Show to be held at the Royal Hospital Gardens, Chelsea, on Tuesday, Wednesday, and Thursday, May 19th, 20th, and 21st. Class 1 is devoted to Orchids, and Silver Cups and Medals will be awarded, as before, at the discretion of the Council. The Davidson Cup will be awarded to the finest Cattleya, not a hybrid, in the Show.

For Orchid groups the front tier of the staging will be two feet high, and the group may then rise to an average height of seven feet from the ground. Palms and light foliage used as decoration are not restricted to seven feet.

The Council desires that groups should be less crowded, and that masses of colour should be broken up by the use of green foliage. The Orchid Committee will assemble at 10.30 a.m. in the Committee Tent at the end of the Great Tent nearest to the Royal Hospital. The Exhibition will be open to Fellows at noon, and to the public at 2 p.m.

The following meeting will be held at the Royal Horticultural Hall on Wednesday, June 3rd.

The Manchester and North of England Orchid Society will hold its last meeting of the Session at the Coal Exchange, Manchester, on May 14th, and the Annual Meeting will be held in the afternoon of the same date. The Committee meets at noon, and the exhibits are open to inspection of members and the public from 1 to 4 p.m.

In a note on "Our Orchid Contemporaries," the *Journal of Horticulture* remarks of the *Orchid Review*: "Fully up to date, topical, and practical, this little sixpenny monthly has come to be regarded as quite an institution in Orchid circles." We thank our contemporary for the compliment.

Mr. C. Alwyn Harrison, the writer of our monthly article, The Amateur's Collection, has been elected a member of the Moscow Orchid Society.

We have received from Messrs. Sander & Sons, St. Albans, a copy of the Addenda for 1913 of their List of Orchid Hybrids, uniform with their earlier Lists.

Mr. J. Gurney Fowler, Chairman of the R.H.S. Orchid Committee, has issued, for private circulation, a List of Orchid Awards given by the Society during the year 1913, as in previous years, and has presented a copy to each member of the Orchid Committee.

ORCHID PORTRAITS.

ANGRÆCUM CITRATUM.—*Orch. World*, iv. p. 153, fig.

ANGULOA CLIFTONII.—*Journ. Hort.*, 1914, i. p. 370, fig.

CATTLEYA TITYUS SHRUBBERY VAR.—*Gard. Mag.*, 1914, p. 337, fig.

CATTLEYA TRIANÆ.—*Orch. World*, iv. p. 145,.fig.

CŒLOGYNE CRISTATA (specimen plant).—*Journ. Hort.*, 1914, i. p. 360, fig.

CYMBIDIUM INSIGNE.—*Orch. World*, iv. p. 160, fig; *Journ. Hort.*, 1914, i. p. 331, fig.; *Horticulture*, 1914, p. 519, fig.

CYMBIDIUM PAUWELSII.—*Gard. Mag.*, 1914, p. 276, fig.

CYPRIPEDIUM MAUDIÆ.—*Gard. Chron.*, 1914, i. p. 252, Coloured Suppl.

DENDROBIUM SUPERBUM HUTTONII SOUTHFIELD VAR.—*Gard. Chron.*, 1914, i. p. 247, fig. 110.

MILTONIA BLEUANA GRANDIFLORA.—*Gard. Mag.*, 1914, pp. 267, 270, fig.

ODONTOGLOSSUM LEANDER.—*Orch. World*, iv. p. 147, fig.

ODONTOGLOSSUM MIRABEAU VAR. MASTIFF.—*Gard. Chron.*, 1914, i. pp. 288, 289, fig. 128.

ODONTOGLOSSUM MOGUL.—*Gard. Mag.*, 1914, p. 287, fig.

ANSWERS TO CORRESPONDENTS.

[*Orchids are named and questions answered here as far as possible. Correspondents are requested to give the native country or parentage of plants sent. An* ADDRESSED *postcard must be sent if a reply by post is desired (abroad, reply postcards should be used). Subjects of special interest will be dealt with in the body of the work*]

F.J.H.—We cannot find a previous record of this variety, which is evidently a dwarfed form ot Cymbidium Lowianum.

Received.—R.G.T., F.H.M., T.C., H.G.A., A.C., Dr.T.

Photographs received, with thanks.—H.G.A., H.J.C.

Catalogues received.—Messrs. Charlesworth & Co., for 1914, see page 132.

VOL. XXII. JUNE, 1914. No. 258.

THE ORCHID REVIEW

Edited by R. ALLEN ROLFE, A.L.S.

CONTENTS:

	PAGE
Amateur's Collection	189
Answers to Correspondents ...	192
Bulbophyllum Fletcherianum ...	164
Calanthe Cooksoniæ	177
Calendar of Operations for June ...	172
Chelsea Show	180
Epidendrum bicameratum	164
Eria pilifera	171
Lawrence Orchid Collection ...	176
Miltonia hybrids	170
Miltonia St.-Andre	169
New Hybrids	190
Orchid Notes and News	191
Orchid Portraits	192
Orchids at Rawdon, Leeds	165
Orchids mascula alba	176
Our Note Book	161
Renanthera Imschootiana	175
Societies	178
Manchester and North of England Orchid	186
Royal Horticultural	178

ILLUSTRATIONS.

Calanthe Cooksoniæ	177
Miltonia St.-Andre	169
Orchids: a corner of Messrs. Cypher's group at Chelsea	185

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The Editor invites communications on interesting subjects (which should be written on one side of the paper only), also portraits, &c., of rarities.

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The Orchid Review

VOL. XXII. JUNE, 1914. No. 258.

OUR NOTE BOOK.

LAST month we alluded to the Royal Horticultural Society's coming Spring Show at the Royal Hospital Gardens, Chelsea, and now we are able to say that the event was a great success, and by general consent the best that has been held there. The weather was fine and genial throughout, and this doubtless had a stimulating effect on the attendance, which was very large. The Orchids, with which alone we are concerned, occupied a high stage at either end of the large tent, and were skilfully arranged in banks and mounds, with a background of palms and ferns, and in several cases with an attempt at massing the colours which tended to break the monotony. The rest of the exhibits were relegated to the ground floor, and the arrangement gave a delightful garden-like aspect to the place, with plenty of space for visitors to walk about and inspect the plants. There was one Orchid group on the ground, that of Messrs. Cypher & Sons, and the arrangement was so effective, with a few of the epiphytal species set on an arch-like support, that the system might be extended with advantage.

The display of Orchids was magnificent, and was largely made up of trade exhibits, the exceptions being fine groups staged by Sir Jeremiah Colman, Bart., and His Grace the Duke of Marlborough, which gained respectively a Gold Medal and a Silver-gilt Cup. It was generally regretted that the magnificent Westonbirt collection was unrepresented on this occasion. Continental exhibits were reduced to a few solitary examples. There were few outstanding novelties, but the quality and culture of the plants generally were excellent, while the number of brilliant Odontiodas and Renanthera Imschootiana formed an imposing display. Læliocattleyas, Odontoglossums, and Miltonias were also numerous and excellent, and six of the latter caught the eye of the Committee, though we regret to note that in several cases the parentage was not forthcoming, thus imposing a difficulty in their registration. Further details are given in our report.

Speaking of Registration of Hybrids reminds us that our American confreres are also paying attention to the subject, and the following notice is taken from the pages of our contemporary, *Horticulture*, for May 16th, 1914 (p. 733) :—

DEPARTMENT OF PLANT REGISTRATION.

Public notice is hereby given that Mrs. B. B. Tuttle, of Naugatuck, Conn., submits for registration the Orchid described below. Any person objecting to the registration or to the use of the proposed name is requested to communicate with the Secretary at once. Failing to receive objection to the registration the same will be made three weeks from this date.

Name—Laelio-Cattleya Tuttleæ.

Description—Derived by crossing Cattleya Thayeriana with the pollen of Laelia Perrinii; habit of growth much like Laelia Perrinii; leaf and pseudo-bulbs dark green, suffused with reddish purple; flowers intermediate between the two parents; sepals and petals light rose; lip nearly entire; in shape like that of C. Thayeriana, nearly white, with the apex of the front lobe deep crimson; flowers 4½ inches across.

May 8th, 1914. JOHN YOUNG, Secy.

Mr. Young is the Secretary of the Society of American Florists and Ornamental Horticulturists, and the above notice indicates their method of registering plant names. Should no objection be made within the period mentioned a second notice will appear, as follows :—

Public notice is hereby given that as no objection has been filed to the registration of the Orchid, Lælio-Cattleya Tuttleæ, by Mrs. B. B. Tuttle, of Naugatuck, Conn., same becomes complete.

JOHN YOUNG, Secy.

May 29th, 1914.

We are not familiar with all the details of this system of registration, but we think that the probationary period, during which objections to a proposed name may be lodged, might be adopted here with advantage, as it might tend to check some of the manufacture of unnecessary synonymy.

Some of this synonymy it seems almost impossible to avoid, especially when hybrids from the same cross flower in different collections at about the same time. For example, in April of last year we saw in the collection of M. Firmin Lambeau seedlings of a very interesting cross between Odontoglossum Edwardii and Miltonia vexillaria, and the question was raised as to what the flowers would be like. A few days later we saw a plant of the same cross in bloom in Messrs. Sander's Bruges establishment, and it was agreed to call it Odontonia brugensis, under which name it was fully described (*O.R.*, xxi. p. 180), when it was pointed out that one plant had previously flowered. Soon afterwards it appeared at a meeting of the R.H.S. under the name O. Eileen, which became the varietal name when the earlier record was pointed out. But now a beautiful coloured plate has appeared under the name Odontonia Guillaume Olyff (*Rev. Hort. Belge*, 1914, p. 137), and this plant is said to have been raised in the collection of

Messrs. Duchesne et Lanthoine, of Watermael, and to have been exhibited at a meeting held at Brussels in May, 1913, when it was unanimously awarded a Certificate of Merit. The description in our pages is pointed out, but priority is claimed for the certificated name O. Guillaume Olyff.

Here was a new development, and we at once looked for our contemporary's earlier record, but found none. We then turned to the *Tribune Horticole*, and found in its issue of May 24th the records that on May 10th, 1913, O. Guillaume Olyff was exhibited at Brussels (p. 329) by M. Firmin Lambeau, and again on May 18th by the same exhibitor (p. 335). In each case it received a Certificate of Merit, unanimously. This must be the plant alluded to, for those seen in M. Lambeau's collection had not reached flowering size. But there was neither parentage nor description, and on the second occasion a "?" was placed after the generic name, and it is no wonder that the name was passed over unnoticed. It is a *nomen nudum*, and it is a very necessary rule that such a record does not constitute publication. As it is, publication dates from a later period, and the name must now stand as M. brugensis var. Guillaume Olyff. The circumstance should emphasise the necessity of recording the parentage and giving at least a brief description, as required by the rules. It should not be necessary to point out that without the record of parentage no hybrid can be inserted in its place in the scheme of classification.

A press cutting is obligingly forwarded by a correspondent, who is not quite sure whether it ought to come under the heading of Amusements or Registration—it really seems to combine both—but perhaps we may leave it under its own appropriate title. It is the moving

"LIFE ROMANCE OF A NEW ORCHID,

Rescued From Malarial Swamps To Achieve Fame, Now in a London Suburb. It was raised from one little seed, and rejoices in the name of Odontoglossum crispum Prince of Wales." But we must begin at the beginning, for that little seed has a history.

"There is a wonderful amount of romance about Orchids in general," we are told, "and in this one in particular. Several years ago a band of intrepid bulb hunters set out to hunt for rare plants in the swamps of Columbia. After penetrating hundreds of miles into a trackless wilderness, and searching in all kinds of dangerous spots, places haunted by deadly reptiles and equally deadly animals, where death lurked on every hand, the hunters succeeded in securing a large quantity of dirty, useless-looking old bulbs. Most of these were hooked out of interstices in the trees—Orchids in their wild state mostly grow on trees something in the same fashion as the mistletoe. These were shipped back to England. In that parcel

of bulbs were the father and mother of the Odontoglossum crispum Prince of Wales. They were hybridised, and eventually a pod of seeds was produced. It was upon one of those seeds that the raisers experimented.

"Six years ago they placed the tiny seed on the moss of a growing plant. For four months nothing particular happened, although it was watched with anxious care. Then it became fairly certain that the seed was germinating. Two years afterwards there was no doubt that it would make a plant of some sort, but what sort nobody knew, not even those who had been tenderly caring for it day by day, month by month, and year by year. And then, four days ago, when everybody was shivering with cold and walking about with blue noses, the Orchid burst forth."

We have three different versions of the story—two of them accompanied by photographs—but we need not follow it further, for there is a difference of opinion about the attractiveness of the novelty. But it is clearly one of the seedlings of O. crispum Black Prince, and has retained its remarkable colour, a fact which justifies further experiments. There is, however, an earlier O. crispum Prince of Wales, and the discovery that the species grows in "malarial swamps" is news to us.

EPIDENDRUM BICAMERATUM.—An Epidendrum which has just flowered in the collection of the Rev. J. C. B. Fletcher, Mundham Vicarage, Chichester, proves to be the above rare Mexican species. It appears to have been first collected near Oaxaca, by Karwinsky, and afterwards at Inquila, by Jurgensen. According to Reichenbach, plants were introduced by Messrs. James Veitch & Sons among E. vitellinum, a smaller edition of which it somewhat resembles. It bears erect racemes, with numerous fragrant flowers, about $\frac{3}{4}$ inch across, and having yellowish brown or tawny brown sepals and petals and a three-lobed white lip. Lindley placed it in a small group of the section Encyclium near E. hastatum. The species has been unfortunate as regards its nomenclature. Lindley called it E. squalidum (*Fol. Orch.*, Epidendr. p. 8), but it is not the plant of Llave and Lexarza, hence Reichenbach re-named it E. Karwinskii, after its collector (*Gard. Chron.*, 1869, p. 710), overlooking the fact that there was already a species of that name. On discovering this he re-named it E. bicameratum, in allusion to two hollows on the lip (*Gard. Chron.*, 1871, p. 1194).—R.A.R.

BULBOPHYLLUM FLETCHERIANUM.—A remarkable New Guinea species from the collection of the Rev. J. C. B. Fletcher, Mundham Vicarage, Chichester, which received an Award of Merit from the R.H.S. on May 5th last. The oblong pseudobulbs have a granular surface, and the leaves are pendulous, nearly a foot long, and purplish green, with glaucous surface,

somewhat recalling Phalænopsis Schilleriana, and the flowers are borne in a cluster of about seven. The lateral sepals are elongated, acuminate, about four inches long, with involute margins, and the colour dull lurid purple, with whitish splashes, while the dorsal sepal is about half as long, and the broad fleshy lip dark lurid purple. It was obtained from Mr. E. V. Low, Vale Bridge, Haywards Heath, and is now flowering for the first time.

R.A.R.

ORCHIDS AT RAWDON, EAST YORKS.

THE establishment of Messrs. Mansell & Hatcher, situated at Rawdon, East Yorks, about seven miles north of Leeds, is one of the best known in the North of England, and as it is the source of many fine groups which make their appearance at the Shows of the Royal Horticultural Society, and at York, a few notes made during a recent visit will doubtless be interesting.

The position is a steep slope with a south-western aspect, well sheltered from the north, and there are eight ranges of houses, each 110 feet long, with convenient divisions, and all extending from a corridor 120 feet long, which descends in steps, so that each range stands well above the next, and receives an abundance of light. They are heated by five horizontal boilers situated on the lower side of the slope, and no stokeholes are required, so that the heating arrangements are of the most convenient description, while the drainage of the whole site is excellent. The piping in the houses is ample, that on each side being connected to a different boiler, so that in the event of a breakdown in one boiler the other would still be available, and the firing can also be economised during mild weather. There is top and side ventilation, the latter being by shutters opposite to the pipes and alternating with the top ventilators, thus minimising the risk from draughts. The stages are open, with a solid stage close above the pipes, to break the heat and deflect the dry air from the plants, these solid stages being of corrugated zinc, covered with a layer of finely broken bricks, which holds a good supply of moisture and does not have such a destructive chemical effect on the zinc as breeze, which, however, is used elsewhere. Tanks are provided in each house for the storage of rain water, and shading consists of lath-roller blinds running horizontally. The establishment has been greatly extended and remodelled during the last five years, and the whole of the arrangements are in accordance with the requirements of modern Orchid culture, and are reflected in the health of the plants, which leaves nothing to be desired.

The first division of the upper range is an Odontoglossum house, and on entering it we found about half the centre stage devoted to a fine batch

of O. Edwardii hybrids, a few O. Thompsonianum and O. Clytie being in flower and many others in spike. A somewhat novel feature noted was that each spike is weighted with a small ring of lead, which is suspended from near the apex of the spike, and has the effect of gradually bringing it down as growth extends, and thus induces earlier branching and a less rambling spike. Near by were two fine plants of the rare Oncidium zebrinum, one of which was producing a spike, and among various other Odontoglossums we noted some O. crispum and O. Uroskinneri showing for flower. On the side stages were batches of O. grande, O. pulchellum, some of which were in bud, some O. Edwardii seedlings about two years old, a small batch of Cochlioda Nœtzliana with a few in flower and spike, and a lot of Sophronitis grandiflora, the majority being over for the season. The greater part of one side was devoted to a batch of O. Pescatorei and O. triumphans mixed, just as received from the collector, the Pescatorei being about twice as numerous as the triumphans. Examples of both were in flower and spike, and among them was a good form of the natural hybrid O. excellens, with the earliest flowers expanded and quite intermediate in general character. There may be others unflowered.

The next range is devoted to Warm-grown Orchids, and the first house contained a fine lot of Phalænopsis amabilis at the back, about fifty being in bloom, also two P. Lueddemanniana. P. sumatrana was producing two spikes. A nice lot of healthy Cypripedium niveum is grown in lime-stone chippings and loam with scarcely any fibre, and about a dozen were in bloom. There was a good batch of C. Maudiæ, another of Cœlogyne pandurata, and many other interesting things.

At the back of the next house was a batch of Cypripedium Fairrieanum in thriving condition, and it has an interesting history. The plants were going back under cool treatment, and various experiments were tried, with no beneficial result, until they were placed here and grown warm and moist, when they began to pick up at once, and are doing well. They are grown in loam fibre and moss, and watered when dry enough. C. Charlesworthii, it was remarked, is a species that must also be grown warm and moist. In the front was a nice batch of Anœctochili, including numerous species, and these are grown with more shade. Here was a nice batch of imported plants of the rare Paphinia cristata, and a plant of Oncidium Kramerianum coming into bloom.

In the next house was a nice lot of Miltonia vexillaria, and some M. Bleuana which have been raised here, also a fine lot of Renanthera Imschootiana forming a brilliant bank of flowers. Lælia cinnabarina × Cattleya Mendelii had two spikes, with three flowers each, the colour being light salmon-rose, and the lip carmine with a buff yellow throat. Forms of Cattleya Mossiæ, Lawrenceana, Lælia purpurata and others were in bloom,

also Læliocattleya Hyeana and Baden-Powell. Other interesting things were white and rosy forms of Odontoglossum citrosmum, the fragrant Epidendrum glumaceum, Cypripedium bellatulum, and a batch of Trichopilia Backhouseana.

A Cool house contained good plants of Masdevallia coccinea and ignea, with examples of M. Rushtonii, O'Brieniana, ephippium, Houtteana, Curlei, and Ajax, Physosiphon Loddigesii, several Restrepias, Scaphosepalum swertiæfolium, several plants of a very free-flowering Stelis, and the rare Pleurothallis Barberiana, whose identity was not known, but the slipper-shaped lip enabled it to be immediately identified.

A house devoted to seedling Odontoglossums followed, and contained plants in almost every stage. Large batches of seedlings about a year old were followed by those of two years and others of almost flowering size, showing the rapid progress that is being made. Here were some of the choice things being used as seed parents, and we noted a very fine white Odontoglossum crispum, O. Pescatorei bearing four capsules from different pollen parents, Miltonia Phalænopsis × Odontioda Bradshawiæ, Oncidium cucullatum × M. Bleuana, Odontoglossum maculatum × M. Bleuana, O. armainvillierense xanthotes × a fine white crispum, and numerous others.

The next house was also devoted to Odontoglossum seedlings, and many of these were used as seed beds, the seeds being sown on the new compost soon after potting. Quantities of germinating seeds were pointed out, and there were traces of a fine network of fungus mycelium on the surface of the compost. The seedlings were all in promising condition. From this we passed into a Cattleya house, where an enormous number of seedlings about two years old were pointed out. Here was a nice batch of seedlings of Dendrobium Wardianum hololeucum, from which it is hoped to raise the variety true from seed. The little globules were just pushing out their growing point.

The seedling house is an interesting structure, and has sixteen rows of pipes, but arched over and covered with moisture-retaining material so that the heat does not dry up the seed beds. Corrugated zinc covered with a layer of broken bricks is generally used for the solid stages over the pipes.

The next house was similar in character, and here were many Cattleyas bearing seed pods, also Cymbidiums, the curiously beaked capsule of Brassavola Digbyana, and a few Sophronitis grandiflora. The seedling department has been steadily developed for some years under the care of Mr. Banting, and a succession of seedlings from choice crosses are now steadily progressing towards the flowering stage.

On entering another range extending from the Corridor we found a large stock of seedling Cattleyas of about flowering size, and among plants in bloom we noted the fragrant C. suavior, C. Lawre-Mossiæ, C. Dietrichiana,

a few C. Mossiæ and Mendelii, Lælia Latona × C. Mendelii, and a nice lot of Læliocattleya Hyeana and L.-c. Baden-Powell, a batch of L.-c. Canhamiana in sheath, Vanda tricolor, Arachnanthe Clarkei in spike, about 120 Renanthera Imschootiana in bloom, and a plant of R. coccinea on a stump; this is not in flower. Here also Lælia Boothiana × B. Digbyana of about flowering size was pointed out.

In the following Intermediate houses we noted batches of Trichopilia Backhouseana, Odontoglossum grande, plants of Lælia monophylla, a lot of Oncidium concolor and others, Lycaste Skinneri and Deppei, a few Promenæa citrina in bloom, Cymbidium Lowgrinum, a lot of imported Miltonia vexillaria, &c. A plant of M. Bleuana laekenensis was here pointed out making a good growth. This plant was obtained nearly dead, so all the compost was removed, and it was placed in living sphagnum moss, with the result mentioned. Cattleyas that have got into bad condition are treated in the same way, and with success.

A series of Warm houses followed, and we can only mention a few of the subjects noticed, for it is difficult to condense an account of such a large establishment into a few pages. A lot of Dendrobium superbum Huttonii were flowering very freely, and made a fine show, as did also the chaste D. nobile virginale, a few other species keeping them company. A number of Vanda teres were pushing spikes, and here was the rare V. pumila, found in an importation of V. cœrulea. We noted also Saccolabium ampullaceum, Bulbophyllum inflatum, Listrostachys Chailluana, Epidendrum Parkinsonianum, Maxillaria tenuifolia and Sanderiana, and other interesting things. Of Cypripediums there is a representative collection, now mostly out of bloom, while a batch of Cœlogyne pandurata was in thriving condition.

In one of the houses we noticed a lot of Arachnanthe Clarkei, Cattleyas, and other Orchids, laid out on wire netting stages to plump up after being imported, for, in spite of the enormous development of hybridisation during recent years, there is still a big business done with imported Orchids, and of this Messrs. Mansell & Hatcher have a large share, in fact we inspected a large airy room provided with racks, on which the plants are laid when unpacked, and here we saw a fine importation of Cattleya Mendelii, and a few other things, some of which had already been packed off to the Sale Rooms. We also saw the department devoted to osmunda fibre and other potting materials, in which the firm does a large business, and inspected the compost prepared ready for potting the seedling Orchids.

The whole establishment is laid out in accordance with the best traditions of modern commercial Orchid growing, and the culture of the plants is excellent in every respect. We congratulate Messrs. Mansell & Hatcher on their success.

MILTONIA ST.-ANDRE.

THE annexed figure represents a beautiful plant of Miltonia St.-Andre, one of the most floriferous hybrids of this popular genus. It was grown by the Julius Roehrs Co., Rutherford, New Jersey, U.S.A., and bears six racemes and an aggregate of about 33 flowers, making a very graceful picture. Miltonia St.-Andre was originally raised by Messrs. Sander & Sons, St. Albans, from M. Roezlii crossed with the pollen of M. Bleuana, and we saw many of the seedlings in bloom at Bruges in

Fig. 20. MILTONIA ST.-ANDRE.

April, 1908. In the following June it received a First-class Certificate from the R.H.S., when exhibited from the collection of Baron Sir H. Schröder (*O.R.*, xvi. pp. 198, 202). The flowers much resemble M. Bleuana in general character, and the colour is white or blush, often with a little rose-pink at the base of the petals, and a radiating brown blotch at the base of the lip. It varies somewhat in colour and in the shape of the markings, and in the one figured the Roezlii-like blotch at the base of the petals is very conspicuous.

HYBRID MILTONIAS

In view of the recent great improvement in the M. vexillaria group of hybrids—four were certificated at the Chelsea Show, besides two varieties of M. vexillaria—it may be interesting to show the steps by which this improvement has been brought about. The original M. Bleuana was raised by M. Alfred Bleu, of Paris, from M. vexillaria crossed with the pollen of M. Roezlii, and flowered for the first time in January, 1889. Two years later Messrs. Veitch flowered seedlings obtained from the same cross, and it has since been raised from the reverse cross by Messrs. Peeters, M. Roezlii having been used as the pollen parent, this being known as M. Bleuana var. Peetersiæ. It received a First-class Certificate from the R.H.S. in April, 1911, when exhibited by M. Firmin Lambeau (*O.R.*, xix. p. 148). The variety Stevensii was raised in the collection of W. Thompson, Esq., Walton Grange, Stone, in this case the autumn-flowering M. vexillaria Leopoldii being used as the seed parent (*O.R.*, xiii. p. 313, fig. 67).

Seven years elapsed before a secondary hybrid appeared, and this was M. Hyeana, raised by M. Jules Hye from M. Bleuana × M. vexillaria Leopoldii, and was exhibited at a meeting of the R.H.S. held in August, 1906 (*O.R.*, xiv. p. 276). This was followed by M. St.-Andre, obtained by Messrs. Sander & Sons by crossing M. Roezlii with M. Bleuana. We saw a number of plants in bloom at Bruges in April, 1908, and on June 8th it received a First-class Certificate from the R.H.S. when exhibited from the collection of Baron Sir H. Schröder (*O.R.*, xvi. pp. 198, 202).

The beautiful variety of M. vexillaria known as memoria G. D. Owen was next brought into the series, and at the Royal International Horticultural Exhibition, held at Chelsea two years ago, a fine lot of hybrids derived from it and M. Bleuana were exhibited by Messrs. Peeters, of Brussels, these of course being varieties of M. Hyeana (*O.R.*, xx. p. 171). The beautiful variety Jules Hye de Crom received a First-class Certificate at the same meeting (*l.c.*, p. 194). This was exhibited by M. Jules Hye de Crom. At the following Holland House Show the same exhibitor received a First-class Certificate for M. Hyeana var. Le Conquerant (*l.c.* p. 249), and in the following April a beautiful series of varieties of the same was shown at the Ghent Quinquennial Exhibition (*O.R.*, xxi. p. 188).

The matter was carried a stage further when M. Hyeana itself was crossed with M. v. memoria G. D. Owen, by Messrs. Charlesworth, resulting in the handsome M. Charlesworthii, which received a First-class Certificate at Chelsea a year ago (*O.R.*, xxi. pp. 218, 313, fig. 60); while the same beautiful variety of M. vexillaria united with M. St.-Andre gave the charming M. Sanderæ, for which Messrs. Sander & Sons received a First-class Certificate at the Holland House Show (*l.c.*, pp. 246, 256, fig. 56).

A further development may now be mentioned, namely, M. St.-Andre re-crossed with M. Roezlii, of which we saw examples in bloom in Messrs. Sander's Bruges establishment a year ago (*O.R.*, xxi. p. 306). One of them had a very pretty radiating blotch at the base of the lip, and some showed reversion towards M. Roezlii.

Lastly, we have the promising novelty exhibited by Messrs. Sander at the Chelsea Show, under the name of M. Isabel-Sander (Hyeana × Roezlii), a charming white flower with a crimson blotch at the base of the lip. In some of the small seedlings now beginning to flower the blotch is said to be extremely dark.

It will thus be seen that M. Bleuana has been re-crossed with both its parents, giving M. Hyeana and M. St.-Andre, and these have been again united with M. vexillaria memoria G. D. Owen, while M. St.-Andre and M. Hyeana have been re-crossed with M. Roezlii, filling up the gap between the species. Owing to imperfect records we are not sure under which name some of the recently-certificated varieties belong. Of course the work of selection and intercrossing the finest varieties will be continued, and further developments may be anticipated now that M. vexillaria has been united with several of the Odontoglossums. We appeal to our hybridists to keep careful records of their experiments, so that the march of improvement may be duly recorded.

ERIA PILIFERA.—An Eria has flowered at the Royal Botanic Gardens, Glasnevin, on several occasions whose identity has not previously been made out. All that was known of it was that it was obtained from Messrs. Sander & Sons in June, 1904. It has again been sent to Kew for determination by Sir Frederick W. Moore, and has now been identified with E. pilifera, Ridl., a species described eight years ago (*Journ. Linn. Soc.*, xxxii. p. 289) from materials collected on trees in thick jungle, at about 2400 feet elevation, on Maxwell's Hill, one of the Larut Hills, Perak. It was then thought to be endemic, but has since been collected at 3300 feet elevation at Tambangan, Sumatra, by Schlechter, and at Gojoe (Java ?) by J. J. Smith. It is therefore probable that the Glasnevin plant was one of those sent from Western Sumatra, by Messrs. Sander's collector, W. Micholitz. It was referred to the section Bambusæfolia by Ridley, and to Cylindrolobus by Schlechter, a section which Kränzlin has transferred to Trichotosia, which he retains as a genus, calling the species Trichotosia pilifera. The plant has cylindrical stems, with short lanceolate distichous leaves, and single-flowered racemes, with a basal rosette of about five spreading narrow dull yellow bracts. The flowers are white, with the small rounded front lobe of the lip entirely covered with yellow papillae. It is a distinct and interesting species.

R.A.R.

CALENDAR OF OPERATIONS FOR JUNE.

By T. W. BRISCOE, Late Foreman of Messrs. Veitch's Hybridising Department.

IF the weather is seasonable very little fire heat will now be needed, and it is advisable to take advantage of this opportunity to overhaul the heating apparatus, and make good any defects in the system. The temperatures must be carefully regulated, and a slight increase will be beneficial during hot and sunny weather in all the Warm divisions. Ventilation and shading go together, and must be used in a way that will prevent excessive fluctuations in the temperatures. A moist buoyant atmosphere should be the rule in every department, and the houses must be damped down whenever they are dry, while the sprayer can be freely used among the seedlings and cool-growing Orchids.

A collection of Orchids is always interesting, but especially so at this time of year when so many are flowering, and others are making their season's growth. Among the latter are the Calanthes, and all those that are rooting freely may be afforded liberal supplies of water, and the same remarks apply to the pretty Epidendrum vitellinum. Cattleya Warscewiczii can be given water more copiously after this date, and a few of the earliest plants will be producing their flower-sheaths. Any that do not bloom should be repotted, when they commence to root from the current pseudobulb, in a mixture of osmunda and AI fibre. C. Mossiæ and C. Mendelii, as they pass the flowering stage, should be looked over to ascertain if additional pot room or new material is needed, and if so the same kind of compost can be used. For a few weeks afterwards careful watering is necessary, and, until well-rooted, a little extra shade may be employed, or some of the back leaves may turn yellow and eventually have to be removed. The winter-flowering Cypripediums are making rapid growth, and will need ample supplies of water at the root, while an overhead spraying on bright days will be of considerable benefit.

THUNIAS.—A few of the Thunias are pushing up their flower scapes, and may be given alternate waterings with weak liquid cow manure. As the blooms expand they can be removed to a cooler and drier house, where the display will be prolonged. Miltonia vexillaria with its varieties, that make such a fine show at this season, ought not to be overdone with moisture at the root, and when the spikes are removed the plants should be slightly rested in the Cool house, and watered sparingly until the new growths begin to root, when any repotting can be carried out.

STANHOPEAS are not grown so much as they deserve, and, owing to their mode of flowering, are well adapted for suspending from the roof of the Warm or Cattleya division. All should be grown in teak-wood baskets,

and the usual drainage dispensed with, on account of the way they have of pushing their flower spikes in various directions, especially through the bottom of the receptacle. The best time to provide fresh rooting material is when growth begins, and it should consist of peat, osmunda fibre, and sphagnum moss in equal parts. A large quantity of soil around the base is not desirable, neither ought it to be pressed very tight. When growing freely Stanhopeas should be abundantly supplied with water, and a spray over once or twice each day will benefit the plants, and hold in check red spider. When at rest a dry, intermediate temperature is advised, and only enough water to maintain the pseudobulbs in a plump and firm condition. The quaint Coryanthes may also be cultivated in the same house, and given similar treatment. All plants suspended from the roof should receive constant attention at this season, or some may suffer from lack of moisture at the base. Any of the small botanical Orchids can be top-dressed or repotted as the necessity arises.

DENDROBIUM PHALÆNOPSIS and D. FORMOSUM.—If not already done, these useful autumn-flowering Orchids should be repotted without further delay. The best receptacles are shallow pans, and, if the house is a lofty one, a wire handle should be attached, by which they can be suspended. For an ordinary house the usual flower-pot will do equally as well. Their growing period is comparatively short, so that they should be accommodated in a warm, moist structure, and they need only be shaded during the hottest part of the day. The cooler-growing D. infundibulum and D. Jamesianum may also be given attention if a larger pan is required or the compost is in a decayed or sour state. Other species that commence growing about this time include D. Farmeri, densiflorum, and the beautiful D. thyrsiflorum. Annual disturbance at the root is not advised, but where such an operation is necessary this is the best time to carry it out. This section ought to be potted rather firmly, the mixture consisting of osmunda fibre, polypodium fibre, and sphagnum moss in equal parts. While in active growth a light position in the Cattleya house should be chosen, but when the pseudobulbs are fully developed they will take a season of repose in a slightly cooler temperature and a somewhat drier atmosphere.

MASDEVALLIA TOVARENSIS.—Many of the Masdevallias will be making a nice display, and must be protected from all strong sunshine. A cool temperature should be the rule, and a careful watch ought to be kept for thrip, for if allowed to make headway the foliage will be disfigured. The chaste winter-flowering M. tovarensis may be supplied with new compost if the old soil is at all decomposed. To keep Masdevallias in a thriving condition they should be repotted about every second year, and carefully watered at all times.

CŒLOGYNE DAYANA.—When the flower scapes are removed, all the

plants that need it may be repotted. The long drooping racemes of this garland Orchid are quite distinct, and give a little variation to the plants that bloom at this season. It may be grown in the Cattleya house, and afforded plenty of water when active, but when at rest the supply should be reduced.

ZYGOPETALUM MACKAYI and *Z.* CRINITUM will now be rooting freely, and must receive copious supplies of water at the base. The Intermediate house will suit them at this season. It is advisable to spray them overhead occasionally to keep in check insect pests. *Zygocolax* Veitchii and Colax jugosus may also be grown in the same house, and should be shaded from strong sunlight.

MAXILLARIAS.—This is a varied genus, containing both large and small-flowered species. Among the former will be found M. Sanderiana, which should be grown in a teak-wood basket on account of its decumbent scapes. M. grandiflora and M. venusta are also showy plants. In the latter section are M. meleagris, M. sanguinea, M. tenuifolia, and others whose small pseudobulbs are borne at intervals on ascending rhizomes, and for this reason are best placed round a piece of tree-fern, or similar material, with the base arranged in a pan or ordinary flower-pot. The usual Cattleya compost may be used, and any repotting should be done when growth begins. Most of the Maxillarias will thrive in the Intermediate or Cattleya house, and they must be kept more or less moist throughout the year. Shade from strong sunlight will be necessary, and they should receive plenty of fresh air whenever the external circumstances permit the opening of the ventilators. Bifrenarias have long ago receded into the background, but B. Harrisoniæ is occasionally met with, and should be grown under the same conditions as Maxillarias.

COCHLIODA NŒTZLIANA and the other species of this interesting genus may be suspended from the roof of the Cool house, and receive the same treatment as other occupants of this division. They are rather slow growing, and when it becomes necessary to repot them a few partly decayed oak leaves may be incorporated with the usual mixture.

EPIDENDRUM PRISMATOCARPUM.—As this pretty species passes the flowering stage any plants that require additional root room should have attention. It will thrive either in the Cattleya or Intermediate house, if placed in well-drained pots and carefully watered for a few weeks after being disturbed at the base.

POSITIONS OF PLANTS.—It is sometimes stated that a certain Orchid "will not grow." We have all had occasionally a refractory subject to deal with, and have found from experience that it was purely a question of finding the right position before it would succeed. Where any particular Orchid is not thriving it ought to be moved to another position and the

treatment varied. One may give a little more sunshine or shade, or provide more air or moisture; plants suspended can be arranged on the stage and *vice versa*; in fact many ideas in this direction will occur to the observant cultivator, and in this way a suitable position will often be found. Slight variations in the conditions have sometimes a great influence on the health of a plant.

THRIP.—In some districts thrip is most troublesome, especially where the houses are in close proximity to herbaceous borders and shrubs, so it is essential for the grower to be on the look-out for these pests, and exterminate them by the usual method.

RENANTHERA IMSCHOOTIANA.

VISITORS to the big summer shows, and more especially that held at Chelsea, will doubtless be much impressed by the fine display made by this handsome Orchid, its long branching spikes of bright scarlet and orange, butterfly-like blooms creating a very pleasing effect. It is of easy culture, and in fact success may be achieved in any greenhouse wherein the lowest winter temperature is 50° Fahr., with an average of 55° to 65° Fahr. for spring and autumn, but during the summer months the plant will revel in all the heat obtainable. It is usually imported annually in quantity, but for amateurs I would advocate the purchase of healthy established plants, which can be obtained at modest outlay, and give a more satisfactory return.

Throughout the period of growth a moist atmosphere must be continually maintained by frequent damping, whilst, unless in bloom, the plants will derive great benefit from a light spray overhead about 9 a.m. and again about 2 p.m. After the plants have finished flowering, water should be slightly withheld, but never to such an extent as to render the compost dust dry.

Renanthera Imschootiana delights in a light and airy position, therefore throughout the year all possible care must be given to keep the atmosphere fresh and buoyant, and shading should only be employed during the summer months when the sun has great scorching power. Sponging the leaves should be done at regular intervals, and if mealy bug shows itself some insecticide should be employed, as if once firmly established, in the axils of the leaves, it is afterwards difficult to eradicate.

Repotting is usually needed every alternate year, using a compost of clean living sphagnum and osmunda fibre. Prior to setting the plant firmly in the new soil, cut away any dead roots and leaves, and keep freshly disturbed plants somewhat drier and more shaded for a few weeks after repotting.

C. ALWYN HARRISON.

THE LAWRENCE ORCHID COLLECTION.

SOON after the death of Sir J. J. Trevor Lawrence, Bart., an announcement was made that his well-known Orchid collection at Burford had been bequeathed to Lady Lawrence, with an expression of his wish that such of the plants as were especially of botanical interest should be presented to the Royal Botanic Gardens, Kew. This gift has now been made to the national Orchid collection there, which has received from Lady Lawrence a large selection, consisting of 580 plants, belonging to 89 genera and representing 350 species, mainly, but by no means exclusively, of botanical interest. The character of the collection brought together by Sir Trevor at Burford during many years was a matter of general knowledge. It was singularly rich in rare and interesting species, owing to the fact that Sir Trevor at all times paid especial attention to anything that was striking or unusual from a morphological standpoint apart entirely from any decorative value which it might possess. The result of this was that the Burford collection was not only thoroughly representative of the usual showy species and hybrids, but possessed examples of most of the cultivated genera, some of which are seldom met with, and for this reason was perhaps as important from the scientific as from the gardening standpoint. It included plants from almost every quarter of the globe, demanding the most diverse cultural treatment. The magnificent selection from the collection at Burford now transferred to Kew is rich in such genera as Bulbophyllum, Cirrhopetalum, Pleurothallis, Maxillaria, Epidendrum, Eria, Angræcum, Dendrobium, and Cœlogyne, and includes many species and a few genera not previously represented at Kew, some of these being rarely seen in cultivation. The genera not previously present in the Kew collection include Trichoceros, a high Andine genus, very difficult to bring home alive and very difficult to cultivate afterwards; Nasonia and Quekettia, two small American genera; and Stereochilus and Sigmatogyne, from Northern India. The collection also includes a number of undetermined species which have not yet flowered, and in a few cases the genus to which they belong is still doubtful. These unknown plants have been derived from various sources; some of them are plants contributed to the Burford collection by Sir Trevor's son, Captain C. T. Lawrence, by whom they were obtained in West Africa.

ORCHIS MASCULA ALBA.—A plant of this beautiful pure white Orchis has been found wild on a hedge bank near Bideford, by Miss L. Sheldon. It is an albino throughout, even the usual blotches having entirely vanished from the leaves. The purple type is common in the district.—R.A.R.

CALANTHE COOKSONIÆ.

CALANTHE Cooksoniæ is a chaste and beautiful hybrid, which was raised in the collection of Mrs. Norman Cookson, Oakwood, Wylam, by Mr. H. J. Chapman, from C. Harrisii × C. vestita oculata gigantea,

Fig. 21. CALANTHE COOKSONIÆ.

and received a First-class Certificate from the R.H.S. in November, 1911 (*O.R.*, xix. p. 365). It has pure white flowers, and is a decided improvement on C. Harrisii, the mother plant. For the loan of the block we are indebted to the courtesy of the Editor of the *Journal of Horticulture*.

SOCIETIES.

ROYAL HORTICULTURAL.

A MEETING was held at the Royal Horticultural Hall, Vincent Square, Westminster, on May 5th, when the Orchid exhibits were smaller than usual, but included two remarkable novelties in Bulbophyllum Fletcherianum and Oncidioda Mauricei. The awards consisted of three medals, two First-class Certificates, and three Awards of Merit.

Orchid Committee present: J. Gurney Fowler, Esq. (in the Chair), Messrs. J. O'Brien (hon. sec.), Gurney Wilson, W. Bolton, F. Sander, R. G. Thwaites, F. M. Ogilvie, T. Armstrong, A. McBean, W. Cobb, J. E. Shill, H. G. Alexander, G. Hunter, W. P. Bound, A. Dye, E. H. Davidson, F. J. Hanbury, C. J. Lucas, Stuart Low, de Barri Crawshay, R. A. Rolfe, W. H. White, S. W. Flory, and Sir Harry J. Veitch.

H. T. Pitt, Esq., Rosslyn, Stamford Hill (gr. Mr. Thurgood), received a Silver Flora Medal for an interesting and varied group, including some good forms of Miltonia vexillaria, Odontoglossum hastilabium, O. Wiganianum, O. Hyeanum, O. spectabile, O. crispum flaveolum, O. c. Stamfordianum, and other blotched forms, Zygopetalum Perrenoudii, Zygocolax Veitchii, Angræcum Sanderianum, Bulbophyllum Lobbii, Lycaste Lawrenceana, Anguloa Clowesii and uniflora, Cattleyas, Brasso-cattleyas, Læliocattleyas, and Cypripediums, with several interesting botanical species.

Mrs. Norman Cookson, Oakwood, Wylam (gr. Mr. H. J. Chapman), sent Odontoglossum illustrissimum Cookson's var., a large and well-blotched form, and Odontioda Vivienne (O. Cooksoniæ × Odontoglossum crispum Britannia), having lilac-tinted sepals and petals blotched with red.

De Barri Crawshay, Esq., Rosefield, Sevenoaks (gr. Mr. Stables), sent Odontioda rosefieldiensis, Odontoglossum Bellamina (bellatulum × armainvillierense), and forms of O. Queen Alexandra and O. harvengtense.

Lt.-Col. Sir George L. Holford, K.C.V.O., Westonbirt (gr. Mr. Alexander), sent Miltonia White Admiral, apparently a form of M. St.-Andre, bearing a fine spike of milk-white flowers with some brown veining on the base of the lip, Odontioda Chantecleer Westonbirt var. and Orchidhurst var., two glowing scarlet forms, and some good examples of O. Bradshawiæ and O. Vuylstekeæ.

The Hon. Lady Neeld, Grittleton, Chippenham (gr. Mr. Pitts), sent Odontioda Diana Grittleton var., with a fine spike of twenty-five deep crimson flowers.

F. M. Ogilvie, Esq., The Shrubbery, Oxford (gr. Mr. Balmforth), sent Odontoglossum Jorisianum aureum (triumphans aureum × luteo-

purpureum Vuylstekeanum), having entirely yellow flowers, and the fine O. Harwoodii Shrubbery var.

R. G. Thwaites, Esq., Chessington, Streatham (gr. Mr. Hannington), sent Læliocattleya Pizarro, Cattleya Dusseldorfii Undine, and the chaste Odontoglossum Pescatorei virginale Thwaites' var.

Messrs. Stuart Low & Co., Jarvisbrook, Sussex, staged a fine group, in which the scarlet Renanthera Imschootiana and the white Dendrobium Jamesianum appeared in quantity, and produced a very charming effect. There were also a few Brassocattleyas, two Vanda cœrulescens, and a few others (Silver Flora Medal).

Messrs. Hassall & Co., Southgate, sent a pretty group of Cattleya Schrœderæ, including a good C. S. alba, with examples of Trichopilia Backhouseana, Oncidium pulchellum, Læliocattleya bletchleyensis, L.-c. Olivia, and L.-c. Lydia (Silver Banksian Medal).

Mr. J. Birchenall, Alderley Edge, sent Dendrobium pulchellum and two Cattleya Mendelii.

Messrs. Charlesworth and Co., Haywards Heath, staged a choice group of well-grown plants, including the handsome Miltonia Charlesworthii, Chysis langleyensis, Cattleya Schilleriana, Odontoglossum Lambeauianum, Odontioda Hippolyta, O. Madeline, and some good forms of the pretty O. Royal Gem, one of which closely resembled a blotched Odontoglossum Pescatorei except that the blotches were more red.

Messrs. E. H. Davidson & Co., Orchid Dene, Twyford, sent Sophrocatlælia Dorila var. Mrs. Hatfield (L. pumila × S.-c. Doris), a pretty rose-purple flower.

Messrs. Flory & Black, Orchid Nursery, Slough, staged a pretty group, including Læliocattleya Dominiana alba, a most beautiful form, having white sepals and petals and a richly coloured lip, L.-c. Deciata (L.-c. Decia × L. purpurata), a richly-coloured L.-c. Invincible, L.-c. Picanus, Disa Luna, &c.

M. Maurice Mertens, Ghent, showed Miltonia vexillaria memoria G. D. Owen, and three hybrids from it, in which the remarkable blotch on the lip was well retained.

FIRST CLASS CERTIFICATES.

ODONTOGLOSSUM CRISPUM THE BARONESS.—A splendidly-grown plant, bearing a spike of very large flowers, heavily blotched with violet-purple on a white ground, and with a dark brown blotch on the lip. Exhibited by Baron Bruno Schröder, The Dell, Englefield Green (gr. Mr. Shill).

ODONTOGLOSSUM HELMUTH (parentage unrecorded).—A very fine thing, perhaps a form of O. illustrissimum, having claret-red sepals and petals, with the margins and lip blush white. Exhibited by Baron Bruno Schröder.

AWARDS OF MERIT.

BULBOPHYLLUM FLETCHERIANUM.—A very remarkable New Guinea species, which is described on page 164. Exhibited by the Rev. J. C. B. Fletcher, Mundham Vicarage, Chichester.

CYPRIPEDIUM MACRANTHUM ALBUM.—A charming albino of this fine Siberian species, the flowers being uniformly white. Exhibited by Mr. Reuthe, Fox Hill Hardy Plant Nursery, Keston.

ONCIDIODA MAURICEI.—A remarkable thing, which is described under New Hybrids at page 190. Exhibited by M. H. Graire, Amiens, France.

THE CHELSEA SHOW.

The Great Spring Show of the Royal Horticultural Society was held in the grounds of the Royal Hospital, Chelsea, from May 19th to 21st, in delightful weather, and was highly successful in every respect. The Orchids were, with two exceptions, exhibited on a rather narrow stage at the two ends of the large tent, and were very effectively arranged in undulating mounds, with a background of ferns and foliage plants, producing a very brilliant display. Sixty-five subjects were entered to go before the Committee, and of these nine gained First-class Certificates, ten Awards of Merit, and three Cultural Commendations. The other awards were three Gold and three other medals and seven Silver Cups. As regards the groups, the Judges for Amateur's exhibits were: Messrs. W. Bolton, J. Charlesworth, J. Cypher, and F. Sander, and for Nurserymen, Messrs. J. Gurney Fowler, de Barri Crawshay, J. E. Shill, and Sir F. W. Moore.

Orchid Committee present: Sir Harry J. Veitch (in the Chair), and Messrs. James O'Brien (hon. sec.), Arthur Dye, R. G. Thwaites, Walter Cobb, Sir Jeremiah Colman, Bart., R. A. Rolfe, R. Brooman White, Elijah Ashworth, H. G. Alexander, F. J. Hanbury, F. Menteith Ogilvie, G. F. Moore, C. Cookson, Gurney Wilson, Stuart H. Low, S. W. Flory, E. H. Davidson, H. J. Chapman, W. P. Bound, W. H. Hatcher, T. Armstrong, C. J. Lucas, and G. Hunter, with Comte Joseph de Hemptinne, visitor.

The following is the list of Certificated Orchids:—

FIRST-CLASS CERTIFICATES.

LÆLIOCATTLEYA HAROLDIANA BRONZE KING.—A very large and finely-shaped form, having bronzy rose sepals and petals, and a rich claret-purple lip. Exhibited by Messrs. Stuart Low & Co., Jarvisbrook, Sussex.

LÆLIOCATTLEYA MEDINA VAR. EXCELSIOR (L.-c. Canhamiana alba × C. Madame Myra Peeters).—A very large and handsome hybrid, having broad, rosy lilac sepals and petals, and a rich purple-crimson lip with yellow throat. Exhibited by Messrs. Flory & Black, Orchid Nursery, Slough.

MILTONIA J. GURNEY FOWLER.—A magnificent hybrid, in which the ruby red, butterfly-like mask of M. vexillaria memoria G. D. Owen appears

on a rose-pink ground colour, giving a very charming effect. Exhibited by Messrs. Armstrong & Brown, Tunbridge Wells.

MILTONIA THE BARONESS.—Another very charming form, differing from the preceding in having the ground colour white, and the mask very dark crimson, margined with a clear rosy crimson line. Exhibited by Messrs. Armstrong & Brown, Tuubridge Wells.

MILTONIA PRINCESS VICTORIA ALEXANDRA.—A charming white form, with a triangular, crimson mask on the disc of the lip. Exhibited by M. Ch. Vuylsteke, Loochristi, Ghent.

MILTONIA VEXILLARIA LÆLIA SANDER.—A very beautiful form, bearing a spike of yellowish white flowers, with a rosy flush at the base of the petals, and a brown and crimson mask on the base of the lip. Exhibited by Messrs. Sander & Sons, St. Albans.

MILTONIA VEXILLARIA SOLUM.—A large and handsome blush rose form, with pale margins to the segments, and a dark crimson mask at the base of the lip. Exhibited by Messrs. Sander & Sons, St. Albans.

ODONTIODA BRADSHAWIÆ PERFECTION.—An exceptionally large form, with uniformly scarlet flowers, shot with mauve, and a yellow crest to the lip. Exhibited by Messrs. J. & A. McBean, Cooksbridge.

ODONTOGLOSSUM QUEEN ALEXANDRINA (parentage unrecorded).—A large and handsome form, perhaps a form of O. illustrissimum, having deep claret-coloured flowers with a white margin. Exhibited by Messrs. Charlesworth & Co., Haywards Heath.

AWARDS OF MERIT.

BRASSOCATTLEYA SHILLIANA (C. Mossiæ × B.-c. Veitchii).—A large and handsome form, having two rose-pink flowers, and the throat of the well fringed lip yellow with some dark lines. Exhibited by Messrs. Armstrong & Brown, Tunbridge Wells.

CATTLEYA MAGALI-SANDER (Dusseldorfii Undine × Mossiæ Wageneri).—A beautiful white Cattleya, with a chrome yellow disc to the lip. Exhibited by Messrs. Sander & Sons, St. Albans.

CYMBIDIUM VENUS (Holfordianum × insigne).—A charming hybrid, having white sepals and petals, and the lip covered with minute purple dots. Exhibited by Messrs. Stuart Low & Co., Jarvisbrook, Sussex.

LÆLIOCATTLEYA FASCINATOR-MOSSIÆ VAR. PURITY.—A beautiful albino, having white flowers with a yellow disc to the lip. Exhibited by Messrs. Charlesworth & Co., Haywards Heath.

LÆLIOCATTLEYA SUNSTAR (Andromeda × Myra).—A very beautiful hybrid, having clear yellow flowers of good shape. Exhibited by Messrs. Charlesworth & Co., Haywards Heath.

MILTONIA ADONIS (Bleuana × vexillaria memoria G. D. Owen).—A very pretty form of M. Hyeana, bearing blush white flowers, with a

butterfly-like, crimson mask on the base of the lip. Exhibited by M. Ch. Vuylsteke, Loochristi, Ghent.

ODONTIODA PRINCE DE GALLES (O. Vuylstekeæ × Odontoglossum mirum).—A pretty flower of the O. Coronation class, having a large salmon-red blotch on a pale ground. Exhibited by M. Ch. Vuylsteke.

ODONTOGLOSSUM CHANTECLEER (parentage unrecorded).—A pretty flower of the O. illustrissimum type, and having uniformly red-brown sepals and petals margined with lilac, and a white lip with a large brown blotch all round the yellow crest. Exhibited by Messrs. Armstrong & Brown.

ODONTOGLOSSUM DUSKY-MONARCH (parentage unrecorded).—A hybrid of good shape, having dark claret-coloured flowers with a few whitish splashes, chiefly near the margin. Exhibited by Messrs. Charlesworth & Co.

ODONTONIA ROGER-SANDER (M. Warscewiczii × O. percultum).—A showy hybrid, bearing a spike of large red-purple flowers, with the front of the lip white. Exhibited by Messrs. Sander & Sons.

CULTURAL COMMENDATIONS.

CATTLEYA INTERMEDIA ALBA.—To Mr. E. Hill, gardener to F. J. O. Montagu, Esq., Lynford Hall, Mundford, for a very large specimen, bearing sixteen spikes and 55 flowers.

DENDROBIUM LYONSII.—To Mr. J. Collier, gardener to Sir Jeremiah Colman, Bart, Gatton Park, Reigate, for a finely-grown plant bearing five pendulous racemes of rose-purple flowers.

ODONTIODA BRADSHAWIÆ FIRE KING.—To Mr. J. Collier, gardener to Sir Jeremiah Colman, Bart., for a very fine plant, bearing three panicles of bright scarlet flowers.

The Davidson Cup for the best Cattleya, not a hybrid, in the show was awarded to C. Schrœderæ Queen Empress, a supurb light-blush form with orange throat, exhibited by Messrs. Sander & Sons. It bore one flower.

THE ORCHID GROUPS

formed a magnificent display. At the Royal Hospital end of the large tent were those of Messrs. Charlesworth & Co., the Duke of Marlborough, Messrs. Sander & Sons, and Messrs. Armstrong & Brown, while at the other were those of Messrs. Stuart Low & Co., H. Dixon, C. F. Waters, Flory & Black, Sir Jeremiah Colman, Bart., J. & A. McBean, Mansell & Hatcher, and James Horlick, Esq. Messrs. Cypher's group was staged on the ground, near the first-mentioned groups. We can only mention a few of the more salient features, for some of the larger groups had a frontage of nearly 70 feet, and all were full of interest from end to end.

Sir Jeremiah Colman, Bart., Gatton Park, Reigate (gr. Mr. Collier), staged a magnificent group, which was most effectively arranged, and

gained a Gold Medal. The group was finely banked, and was noteworthy for the number of brilliant scarlet Odontiodas it contained, some of them bearing several spikes. Odontoglossum crispum and hybrids were also numerously represented, and some fine O. Thompsonianum arched over all. We also noted a graceful Cœlogyne Dayana, some beautiful Miltonias, Saccolabium ampullaceum, Oncidium pulchellum, Masdevallia ephippium, Bulbophyllum Lobbii and barbigerum, Stelis parvula, and other botanical and showy species and hybrids.

His Grace the Duke of Marlborough, Blenheim Palace, Woodstook (gr. Mr. Hunter), gained a Silver-gilt Cup for a large and handsome group, in which Læliocattleya Hyeana, Ballii, and others, some good Odontoglossums, many Dendrobium nobile virginale, D. n. nobilius, &c., were backed with Epidendrum radicans, Renanthera Imschootiana, Phalænopsis amabilis, and others, while the ends were largely made up with Cattleya Mossiæ, Mendelii, and Schrœderæ. We noted good examples of Anguloa Clowesii, Dendrobium Dearei and Brymerianum, several good plants of Cypripedium hirsutissimum and niveum, Phalænopsis Stuartiana, &c.

James Horlick, Esq., West Dean Park, Cheltenham (gr. Mr. W. H. Smith), received a Standard Cup for a quite unique group, in which numerous well-flowered plants of Vanda teres formed a large rainbow-like arch, with foliage plants behind, and the light yellow Calla Pentlandii filling up the rest of the half-circle, and forming a most effective display.

R. Ashworth, Esq., Newchurch, Manchester (gr. Mr. Gilden), sent Cypripedium bellatulum Richard Ashworth, a curious form in which the markings on the petals were more or less suffused in a vinous flush, and chiefly on the outer halves.

J. J. Bolton, Esq., Pendleton, Manchester, sent Odontoglossum eximium Boltonii, a large and handsomely blotched form.

J. Gurney Fowler, Esq., Brackenhurst, Pembury (gr. Mr. J. Davis), sent Odontioda Rubens (O. Charlesworthii × Odm. eximium), with cerise-red flowers, O. Fowleriana (O. Bradshawiæ × Odm. percultum) and a Brassolælia obtained from Lælia Iona nigrescens × Brassavola Digbyana.

Lt.-Col. Sir George L. Holford, K.C.V.O., Westonbirt (gr. Mr. Alexander), sent Odontioda Queen Mary Westonbirt var., a finely-grown plant, with dark red blotches on a white ground.

M. Jules Hye de Crom, Ghent (gr. M. Coen), sent Miltonia vexillaria Hyeana, an albino of the species with rather small flowers and a clear yellow disc to the lip.

M. Firmin Lambeau, Brussels, showed Odontoglossum crispum Madame Lambeau, a large and handsomely blotched flower.

W. R. Lee, Esq., Plumpton Hall, Heywood (gr. Mr. Branch), sent Miltonia vexillaria alba, a large and beautiful white form.

Ernest Mocatta, Esq., Woburn Place, Addlestone, Surrey (gr. Mr. Stevenson), sent Miltonia vexillaria Woburn, a large rose-pink form, and M. v. leucoglossa, the latter bearing ten spikes of flowers.

Messrs. Charlesworth & Co., Haywards Heath, staged a magnificent group of about seventy feet frontage, which received a Gold Medal. It was broken up into five banks with intervening dells. The centre consisted of a conical mound of brilliant Odontiodas arranged with maiden-hair ferns, while the end banks were largely composed of choice Odontoglossums of the most varied description, the intervening portions being made up of Cattleyas, Læliocattleyas, Brassocattleyas, a brilliant lot of Renanthera Imschootiana, Phalænopsis amabilis and Lueddemanniana, Oncidium pulchellum, Dendrobium macrophyllum, and others far too numerous to particularise. The group was excellent, both for culture and arrangement, and altogether a very worthy exhibit.

Messrs. Sander & Sons, St. Albans, received a Gold Medal for a very brilliant group of about the same extent and very effectively arranged in conical banks and dells. The centre consisted of a large number of beautiful Miltonias, with a row of Trichopilia suavis in front. Then came masses of Phalænopsis amabilis and Renanthera Imschootiana, and a most brilliant series of Odontoglossums and Odontiodas, with fine large clusters of Læliocattleya Hyeana and L.-c. Fascinator on the lower elevations. There were also many fine Cattleya Mossiæ and Schrœderæ, Brassocattleyas, and Cypripediums, a pretty batch of Odontonias, the brilliant Vuylstekeara Hyeana, and a series of beautiful hybrids, with the rare Bulbophyllum Sillemianum and triste, Denbrobium hedyosmum, and many botanical species, an altogether remarkable group.

Messrs. Armstrong & Brown, Tunbridge Wells, received a Silver-gilt Cup for a very large and varied group, in which brilliant Odontiodas and Odontoglossums, with many beautiful Miltonias, Cattleyas, Læliocattleyas, Brassolælia Helen, Cymbidium Lowianum and var. concolor, some well-grown Cœlogyne pandurata, Brassocattleyas, and brightly-coloured Masdevallias were very effectively combined. The Odontiodas were very numerous and effective, and included many O. rosefieldensis, three fine forms of O. Chantecleer, O. beechensis, Boltonii, and O. Cooksoniæ Orchidhurst var. We noted also Cattleya Skinneri alba, Bulbophyllum barbigerum, Cypripedium Mary (glaucophyllum × Fairrieanum), and many other fine things of the season.

Messrs. Cypher & Sons, Cheltenham, received a Silver-gilt Cup for a particularly effective group, which was arranged on the ground level, with a low arch near the back on which many ephiphytic species were realistically arranged with suitable foliage plants, the effect being that of a fairy glen. It contained many beautiful Læliocattleyas, Odontoglossums,

Calanthe veratrifolia, Cymbidiums, Oncidium sarcodes, and Marshallianum, Dendrobium Wardianum and Devonianum, Epidendrum Boundii × xanthinum, Cattleya Skinneri and Mossiæ, with Miltonia vexillaria and other showy species of the season. The annexed figure shows a corner of this beautiful group (see fig. 22).

Messrs. J. & A. McBean, Cooksbridge, received a Standard Cup for a brilliant group, in which Odontoglossum crispum and hybrids, with a particularly fine series of brilliant Odontiodas, made an imposing bank of colour. A beautiful series of Læliocattleyas, Cattleya Mossiæ, one of them with 27 flowers, C. M. Wageneri, C. Skinneri alba, Oncidium McBeanianum,

Fig. 22. A CORNER OF MESSRS. CYPHER'S GROUP.

Oncidioda Cooksoniæ, Miltonia vexillaria memoria G. D. Owen and M. Bleuana, some brightly-coloured Masdevallias, Maxillaria Sanderiana, and many other showy things were leading features of a group that was marked by the excellent culture and effective arrangement of the plants.

Messrs. Mansell & Hatcher, Rawdon, E. Yorks, received a Large Silver Cup for a fine and very artistically-arranged group, the centre consisting of many long spikes of Phalænopsis amabilis arching over a bank of the brilliant Renanthera Imschootiana and forming a very charming effect. On the sides were banks of Læliocattleyas, Miltonias, Odontiodas, and Odontoglossums, while the ends contained Cattleyas, Dendrobiums,

Cypripediums, &c., with several plants of Stelis sp., Cymbidium Devonianum, Oncidium concolor, Odontoglossum citrosmum, &c., &c., the whole forming a very effective display.

Messrs. Stuart Low & Co., Jarvisbrook, Sussex, received a Silver Cup for a well arranged and showy group, the centre of which consisted of a beautiful combination of Renanthera Imschootiana and Phalænopsis amabilis, while on either side were many fine Cattleya Mossiæ, Mendelii, and Schrœderæ, Odontiodas, Odontoglossums, &c. We noted Lycaste gigantea with four blooms, several Vanda cœrulescens, the rare Cryptochilus sanguinea, Cattleya aurantiaca, Oncidium Marshallianum and unicorne, Sophrocatlælia Marathon, &c., forming a very brilliant display.

Mr. H. Dixon, Wandsworth, received a Silver Flora Medal for a good group, including some fine Cattleyas, Læliocattleyas, Miltonia vexillaria, Odontoglossums, Dendrobium Jamesianum, Cymbidium insigne, C. Lowianum and var. concolor, Odontioda Charlesworthii, Diana, and others, Læliocattleya Canhamiana × C. Mendelii with eight fine flowers, a pretty hybrid from Cattleya Mossiæ and Lælia Latona, Odontoglossum crispum xanthotes Charlesworthii, Cochlioda Nœtzliana, &c.

Messrs. Flory & Black, Orchid Nursery, Slough, received a Silver Flora Medal for a good group, containing many fine Cattleya Mossiæ and Mendelii, with showy Miltonias and Odontiodas, and some good Odontoglossums and others behind. A charming little group of Anœctochili occupied a bank of moss in the centre, and we also noted Nanodes Medusæ, Masdevallia O'Brienana, Disa Lüna, Chondrorhyncha Chestertonii, Læliocattleya Dominiana with white sepals and petals, L.-c. Gladiator, luminosa, and Ballii, a hybrid from Odontoglossum crispum Black Prince, Brassocatlælia Hylas (B.-l. Veitchii × C. Aclandiæ), &c.

Mr. C. F. Waters, Balcombe, received a Silver Banksian Medal for a good group of the showy Orchids of the season, including many typical Odontoglossum crispum, Cattleya Mossiæ and Mendelii, Miltonia vexillaria, and Lycaste Skinneri, with examples of Cypripedium bellatulum, Oncidium leucochilum, Miltonia Roezlii alba, Dendrobium chessingtonense, and many others, the plants being well grown and flowered.

MANCHESTER AND NORTH OF ENGLAND ORCHID.

At the meeting held at the Coal Exchange, Manchester, on April 16th, the members of Committee present were: Rev. J. Crombleholme (in the Chair), Messrs. J. Bamber, J. Cypher, A. Hanmer, J. Howes, J. Lupton, C. Parker, F. K. Sander, W. Shackleton, H. Thorp, A. Warburton, Z. A. Ward, G. Weatherby, H. Arthur (Secretary).

Large Silver Medals were awarded to R. Ashworth, Esq., Newchurch

(gr. Mr. Gilden); A. Warburton, Esq., Haslingden (gr. Mr. Dalgleish), and Wm. Thompson, Esq., Stone (gr. Mr. Howes), for choice groups, including Cattleyas, Odontiodas, and Odontoglossums.

Interesting exhibits were staged by R. le Doux, Esq., West Derby (gr. Mr. Fletcher); J. Leemann, Esq., West Bank House, Heaton Mersey (gr. Mr. Smith); Col. J. Rutherford, M.P., Blackburn (gr. Mr. Lupton); Mr. W. Shackleton. Highfield, Bradford, and Mr. J. Birchenall, Alderley Edge.

FIRST-CLASS CERTIFICATES.

Cattleya Mendelii alba Ashlands var., a flower of fine form, and Lælia purpurata lineata, both from R. Ashworth, Esq.

Odontioda Flamingo, a large flower of brilliant colour, with large flat lip, and Odontoglossum Princess Mary, both from Wm. Thompson, Esq.

Odontoglossum Pharos, a large well spotted flower, from John Leemann, Esq.

Miltonia Charlesworthii Marlfield var., a fine flower, with intense blotch on the lip, from R. le Doux, Esq.

FIRST-CLASS BOTANICAL CERTIFICATE.

Cirrhopetalum Cumingii, from R. Ashworth, Esq.

AWARDS OF MERIT.

Odontoglossum crispum Christopherson, O. nebulum (nebulosum album × aspersum), O. Jasper Purple King, O. crispum flaveolum, O. Raymond, and O. Fascinator waltonense, all from Wm. Thompson, Esq.

Cattleya Mendelii Brilliant, Odontoglossum cordatum aureum, O. crispum Puritan, and O. Darkie, all from R. Ashworth, Esq.

Odontoglossum Domingo de Larringo (Harryanum × illustrissimum), O. ardentissimum Minnie, and O. Lambeauianum Dr. John Utting, all from R. le Doux, Esq.

Odontoglossum eximium Cleome, from John Leemann, Esq.

Miltonia Bleueana Beardwood var., from Col. J. Rutherford, M.P.

CULTURAL COMMENDATION.

To Mr. Gilden, gr. to R. Ashworth, Esq., for a fine plant of Dendrobium Victoria-Regina.

At the meeting held on May 14th, the members of Committee present were:—Rev. J. Crombleholme (in the Chair), Messrs. R. Ashworth, J. Bamber, J. Cypher, J. Howes, A. J. Keeling, J. Lupton, D. McLeod, W. J. Morgan, C. Parker, W. Shackleton, H. Thorp, Z. A. Ward, G. Weatherby, and H. Arthur (Secretary).

A Silver-gilt Medal was awarded to A. Warburton, Esq., Haslingden (gr. Mr. Dalgleish), for an effective group of Odontoglossums, Odontiodas, Miltonias, and Cattleyas.

A Silver Medal was awarded to R. Ashworth, Esq., Newchurch (gr.

Mr. Gilden), for a nice miscellaneous group, including choice Odontoglossums, Odontiodas, Læliocattleyas, Trichopilia Backhouseana, &c.

Interesting exhibits were staged by O. O. Wrigley, Esq., Bury (gr. Mr. Rogers), the group including two magnificent plants of Dendrobium Falconeri, models of good culture; A. J. Oakshott, Esq., Bidston (gr. Mr. Findlow); Col. J. Rutherford, M.P., Blackburn (gr. Mr. Lupton); Mr. W. Shackleton, Highfield, Bradford, and Mr. D. McLeod, Chorlton-cum-Hardy.

FIRST-CLASS CERTIFICATE.

Miltonia vexillaria memoria G. D. Owen, from R. Ashworth, Esq.

AWARDS OF MERIT.

Odontoglossum Aeroplane, O. exquisitum, and O. Jasper Ashlands var., all from R. Ashworth, Esq.

Odontoglossum Prometheus Merle Dene var., from A. J. Oakshott, Esq.

At the Annual Meeting, held in the afternoon of the same date, the Balance Sheet was adopted. R. Ashworth, Esq., was re-appointed President and Hon. Treasurer, and S. Gratrix, Esq., and C. Cookson, Esq., were added to the list of Vice-Presidents. The Rev. J. Crombleholme was re-appointed Chairman, with *Z.* A. Ward, Esq., as Vice-Chairman, H. Thorp, Esq., Hon. Auditor, and H. Arthur, Secretary. The Committee was also elected.

The prizes were presented to the successful exhibitors as follows:—

The President's Cup was won by R. Ashworth, Esq., who presented the same to the Society, for competition during the coming session.

J. J. Bolton's Gold Medal, to A. Warburton, Esq.; gardener's prize to Mr. A. Dalgleish.

J. J. Bolton's Silver Medal, to R. Ashworth, Esq.; gardener's prize to Mr. Gilden.

The Botanic Society of Manchester's Gold Medal, to R. Ashworth, Esq.

Charlesworth's Objet d'Art, to Wm. Thompson, Esq.; gardener's prize to Mr. J. Howes.

Cypher's Gold Medal, to R. Ashworth, Esq.

Davidson's Silver Trophy, to R. Ashworth, Esq.; gardener's prize to Mr. W. Gilden.

Evan's Gold Medal, to Wm. Thompson, Esq.; gardener's prize to Mr. J. Howes.

The Sander 1st Prize, to Mr. A. Dalgleish; 2nd to Mr. W. Gilden; 3rd to Mr. J. Howes.

The Society's Gold Medal, to Z. A. Ward, Esq.; Silver-gilt Medal, to Col. J. Rutherford; Bronze Medal to the Rev. J. Crombleholme; Gold Medal (Small Amateur's), to H. Arthur, Esq.

Prizes were offered for competition during the coming session, due notice of which will be given.

THE AMATEUR'S COLLECTION.

By C. ALWYN HARRISON.

THE treatment needed by the occupants of a Cattleya house this month will be much the same as was advocated for May, with perhaps a little additional attention with respect to watering, damping down, and shading.

CATTLEYAS.—C. Mendelii and Mossiæ will now have finished flowering, and, should repotting be needed, this must be performed at once, for if delayed until the hot weather sets in the plants do not always make such a satisfactory start. The method employed, advised in the March Calendar, must be strictly observed, except that very firm potting is needed by these two species. Where large specimens are possessed, it is not a good plan to merely replace them in pots or pans of larger size, as much waste room is occupied by the old back bulbs. The following is the best method: Carefully divide the specimen, then leave three old bulbs to support each new growth and cut the remainder away, as well as any dead roots. Then, when potting, arrange each piece so that the new growths are growing away from each other, and towards the rim of the pot. If treated in this way compact specimens of five or six leads can be accommodated in comparatively small receptacles, whereas old specimens, if not re-made every three or four years, become unwieldly and merely a collection of an enormous mass of old useless bulbs, which will fail to produce a proportionately larger number of leads than a carefully re-made plant in a pot half the size.

THRIPS are sometimes a source of trouble this month, owing to the advent of warm dry weather, but an occasional spray between the pots and on the floor with a solution of a good insecticide will prove effective.

VANDA CÆRULEA should now receive attention, if beginning to root, by the removal of some of the topmost crocks, and placing in their stead some green living sphagnum moss. Syringe over the leaves every morning and evening, and give water at the root whenever the moss seems dry.

LÆLIA ANCEPS is now beginning to start again into growth, and may be repanned if necessary. Osmunda fibre and sphagnum moss are needed for compost, and a good way of keeping these plants firm in their soil is to peg the rhizomes down by copper wires bent into the form of hairpins. By this means quicker root action will be made in the new soil, through the roots being thus kept in close contact.

SUGGESTED ADDITION.

CATTLEYA EMPRESS-FREDERICK.—Since the parents of this hybrid are C. Dowiana aurea and C. Mossiæ, it can be easily inferred that the

resulting seedlings are extremely beautiful and worthy of a place in every collection. The flowers are large, the sepals and petals lilac, and the broad, frilled lip mauve, but almost covered with exquisite golden veining. It is of early raising, being first flowered in 1888, and is consequently not very expensive. To be successful with this fine hybrid, it should be given a position at the warmest end of the house, and a little extra care in regard to watering in winter will be found advisable. Sound healthy plants must be procured at the outset.

NEW HYBRIDS.

ONCIDIODA MAURICEI (Oncidium tigrinum ♀ × Cochlioda vulcanica).—A very remarkable hybrid, raised by M. Henri Graire, Amiens, France. The habit of the plant and structure of the flowers are almost entirely those of the seed parent, but the colour is profoundly modified, the sepals and petals being of a peculiar red-purple, and the lip pale primrose yellow. Award of Merit, R.H.S., May 5th, 1914.

CYMBIDIUM VENUS (Holfordianum × insigne).—A very pretty hybrid, with the general habit of C. insigne, and having white sepals and petals and the lip covered with minute purple dots. It was exhibited by Messrs. Stuart Low & Co. at the Chelsea Show, and received an Award of Merit.

ODONTIODA GRATRIXIÆ (Odontioda Charlesworthii × Odontoglossum amabile).—Raised by Messrs. Sander & Sons, and now in the collection of S. Gratrix, Esq., West Point, Whalley Range, Manchester.

ODONTIODA LATONA, raised in the collection of R. G. Thwaites, Esq., is believed to be the first recorded hybrid of O. Bradshawiæ, flowering in the summer of 1911 (*O.W.*, i. p. 277). We overlooked the earliest record when figuring the remarkable variety Pearl at page 105.

The following new hybrids were entered for Registration by Messrs. Sander & Sons at the Chelsea Show: Odontoglossum Fortuna (Arlequin × Harryanum); O. Albion (percultum × Rossii); O. Helicon (armainvillierense × Royal-Monarch); O. Herodotus (nobile × Thompsonianum); O. Iconium (cirrhosum × Fascinator); O. Isidorus (cirrhosum × Rio-Tinto); O. Iris (Fletcherianum × Lawrenceanum); O. Julius (Royal-Monarch × Vulcan); O. Irene (nobile × Vulcan); O. Milo (Adrianæ × Wilckeanum); Odontioda Leda (C. Nœzliana × O. Rio-Tinto); O. Leonatus (C. Nœzliana × O. Thompsonianum); Cypripedium Julius (Rothschildianum × Lowii); Læliocattleya Gold-Star (L.-c. Ariel × C. Mendelii); L.-c. Joy-Sander (L.-c. luminosa × C. Schrœderæ); Miltonia Isabel-Sander (Roezlii × Hyeana); Brassocatlælia Everest (L.-c. Canhamiana × B.-c. Leemanniæ); and Cattleya Magali-Sander (Dusseldorfii Undine × Mossiæ Wageneri).

ORCHID NOTES AND NEWS.

TWO meetings of the Royal Horticultural Society will be held in the Royal Horticultural Hall, Vincent Square, Westminster, on June 3rd (Wednesday) and 16th, when the Orchid Committee will meet at the usual hour, 12 o'clock noon. The next meeting is the Great Summer Show to be held at Holland House, Kensington, on Tuesday, Wednesday, and Thursday, June 30th to July 2nd. Cups and Medals will be awarded, as usual, according to merit. The Orchid Committee will meet at 10.30 a.m.

We have not yet received the dates of meetings of the Manchester and North of England Orchid Society for the coming session.

BORNEAN ORCHIDS.

A RECENT issue of the *Journal of the Linnean Society* contains "A Contribution to the Flora and Plant Formations of Mount Kinabalu and the Highlands of North Borneo," by Miss Lilian S. Gibbs, F.L.S., giving full particulars of the exploration of the district and of the plants collected by the author during an expedition made during the winter of 1909-1910. In all about 1000 plants were collected, about a third of them on Mt. Kinabalu itself, and these contain three new genera and 38 new species. The account of the Orchids is contributed by Mr. R. A. Rolfe, A.L.S., and it is remarked: "The Orchids collected by Miss Gibbs number 48 species, of which twenty are new, including one new genus. In working them up two others collected on Mt. Kinabalu by Haviland were found, and as these had been named by Dr. Kränzlin but not described they are included in the present paper, which thus deals with fifty species, of which 22 are here described for the first time. Of the fifty species 42 were collected on Mt. Kinabalu; of these no fewer than 23 are not yet known from elsewhere, and five others are only known from Borneo. Comparing the recent collection with that made by Dr. Haviland eighteen years earlier, it is remarked that Ridley enumerated 24 species as collected by Dr. Haviland, of which 18 (or a proportion of 75 per cent.) were endemic. To these must be added two species not enumerated by Ridley, making a total of 26, of which 20 were endemic. Miss Gibbs has only re-collected seven of these, but on the other hand she has made 35 additions (this only includes those collected on Mt. Kinabalu itself), so that if the two collections are added together we get an aggregate of 61 species found on the mountain, of which 53 (or a proportion of about 80 per cent.) are not known from elsewhere." The majority are chiefly of botanical interest.

ORCHID PORTRAITS.

ANGRÆCUM EBURNEUM.—*Horticulture*, 1914, p. 662, fig.
ANGRÆCUM SESQUIPEDALE.—*Horticulture*, 1914, pp. 625, 630, fig.
BRASSOCATTLEYA SHILLIANA.—*Gard. Chron.*, 1914, i. p. 354, fig. 154.
BULBOPHYLLUM FLETCHERIANUM.—*G.C.*, 1914, i. pp. 320, 321, fig. 142.
CATTLEYA LODDIGESII ALBA STANLEY'S VAR.—*Orch. World*, iv., p. 182, fig.
CATTLEYA TRIANÆ.—*Gard. Chron.*, 1914, i. p. 344, fig. 150.
CATTLEYA TRIANÆ VAR. HYDRA.—*Orch. World*, iv. p. 185, fig.
CYPRIPEDIUM MONTANUM.—*Garden*, 1914, p. 272, fig.
CYPRIPEDIUM SPECTABILE.—*Gard. Chron.*, 1914, i. p. 327, fig. 144.
CYPRIPEDIUM VENTRICOSUM.—*Garden*, 1914, p. 272, fig.
LÆLIOCATTLEYA HAROLDIANA BRONZE KING.—*G.C.*, 1914, i. p. 356, fig. 156.
LYCASTE GIGANTEA.—*Orch. World*, iv. p. 173, fig.
MILTONIA ST.-ANDRE.—*Horticulture*, 1914, p. 725, fig.
ODONTIODA BRADSHAWIÆ PERFECTION.—*Gard. Chron.*, 1914, i. p. 356, fig. 157.
ODONTIODA CLIVE.—*Orch. World*, iv. p. 171, fig.
ODONTOGLOSSUM CRISPUM.—*Orch. World*, iv. p. 172, fig.
ODONTOGLOSSUM ILLUSTRISSIMUM.—*Orch. World*, iv. p. 176, fig.
ODONTOGLOSSUM LAKINÆ.—*Gard. Chron.*, 1914, i. pp. 310, 311, fig. 136.
ODONTOGLOSSUM MOGUL.—*Gard. Ghron.*, 1914, i. p. 295, fig. 129.
ODONTOGLOSSUM QUEEN ALEXANDRINA.—*Gard Mag.*, 1914, p. 424, fig.
ODONTOGLOSSUM SCOTTIANUM MOGUL.—*Journ. Hort.*, 1914, i. p. 442, fig.
ODONTONIA GUILLAUME OLYFF.—*Rev. Hort. Belge*, 1914, p. 137, col. fig.
ONCIDIODA MAURICEI.—*Gard. Chron.*, 1914, i. p. 326, fig. 143.
PHAIOCALANTHE COOKSONI.—*Journ. Hort.*, 1914, i. p. 443, fig.
VANDA CŒRULEA WESTONBIRT VAR.—*Orch. World*, iv. p. 174, fig.

ANSWERS TO CORRESPONDENTS.

[*Orchids are named and questions answered here as far as possible. Correspondents are requested to give the native country or parentage of plants sent. An* ADDRESSED *postcard must be sent if a reply by post is desired (abroad, reply postcards should be used). Subjects of special interest will be dealt with in the body of the work*]

P.B.—3, Hæmaria Dawsoniana; 4, Anœctochilus setaceus; 5, A. regalis; 6, A. intermedius; 7, Goodyera pubescens; 1 and 2, not recognised at present. The Anœctochili contain several genera, and cannot always be identified without flowers.

R.S.—We hope to deal with the matter next month.

Received.—J.C.B.F., H.E., J. de H., S.R.C., J.C., and many hybrid records, which are being dealt with.

J.C.—Photograph received, with thanks.

Catalogue received.—We have received the Catalogue of Orchids of Messrs. G. Ghose & Co, of Townend, Darjeeling, India, Orchid Collectors and Exporters, containing a good selection of Indian Orchids, both showy and botanical species.

ERRATUM.—The first line on page 130 should be transferred to the foot of the page. It was inadvertently put in the wrong place by the printer in transferring it from the preceding page.

VOL. XXII. JULY, 1914. No. 259.

THE ORCHID REVIEW

Edited by R. ALLEN ROLFE, A.L.S.

CONTENTS:

	PAGE
Aërides odoratum at Marlfield ...	209
Aganisia brachystalix	200
Amateur's Collection	207
Answers to Correspondents ...	224
Book: Review of Schlechter, *Die Orchideen* ...	221
Bulbophyllum amplebracteatum ...	199
Calendar of Operations for July ...	210
Hints for Collectors	199
Holland House Show	218
Holford, Lt-Col. Sir George L., K.C.V.O.	201
Manurial aid to Orchids	222
Miltonia vexillaria and its varieties...	196
Obituary	209
George Gordon	223
Richard le Doux	209
Orchid Notes and News	223
Orchid Portraits	224
Orchids at Jarvisbrook, Sussex ...	202
Orchids in Season	222
Our Note Book	193
Renanthera pulchella...	213
Reichenbachian Herbarium, opening of	216
Societies	214
Manchester and North of England Orchid	219
Royal Horticultural	214
Vanda striata	220

ILLUSTRATIONS.

	PAGE
Aërides odoratum at Marlfield ...	209
Lt.-Col. Sir George L. Holford, K.C.V.O.	201

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The Orchid Review

VOL. XXII. JULY, 1914. No. 259.

OUR NOTE BOOK.

THE great Summer Show of the Royal Horticultural Society falls unusually early on this occasion, in fact it has been pushed into June so far as the opening day is concerned, which is surely a little too early for a Summer Show, and very inconvenient for our report, which must for the most part stand over for the next issue. We do not know all the determining causes for such a date, but would suggest that for most purposes a fortnight later would have served equally well, and would have been much nearer to the date originally fixed for this event. Of course Orchids are only one out of a large number of classes, and may always be trusted to put in an appearance in quantity, but we hope the Show will not be pushed further back until it becomes a June function.

We do not know how long it is considered that a Show of this kind ought to last, but the Secretary states that at the Chelsea Show the Council was told that a wish had been freely expressed that in future the Show should last five days instead of three. They therefore submitted the proposal to the exhibitors, but only twenty out of 114 replies received were in favour of the proposal, and consequently it has been decided to let well alone, and to make no change. "The Council fully recognise that many of the Fellows and vast numbers of the public would like an extension of days, but in this matter they have considered it their duty to have respect chiefly to the owners and exhibitors of the plants, hence their decision to make no change at present. For if the conditions of a Show are made too burdensome and expensive to the owners of valuable plants, they will cease to respond to the request to exhibit their treasures, and the Show would gradually deteriorate in quality even if quantity were maintained by admitting inferior material."

And there is another consideration to which our attention has been called, not for the first time, namely, the decrease in the number of

amateur exhibits, by which the Shows are becoming more and more a trade display. Formerly the arrangements were more on the lines of the provincial Shows, competitive classes being arranged, some of which were reserved for amateurs, others for nurserymen, while the remainder were open to both. At the present time amateurs compete against nurserymen, though they cannot be expected to have the same resources at command, and the smaller amateurs are discouraged. Nurserymen themselves dislike the arrangement, realising that recruits come from the ranks of the smaller amateurs who eventually specialise and form large private collections, which is all to the good of the trade. It is suggested that the Society should take steps to increase the number of amateur exhibits, not only at the great Shows, but also at the fortnightly meetings. One step towards this would be the setting apart of classes for amateur exhibits, according to the season, at the regular meetings. The present system is little more than providing spaces for anybody to fill, with anything that they may happen to have in bloom at the time. No one knows what is coming, and the groups are practically all alike.

This is quite to the point, and we think more might be done to encourage amateur exhibits, particularly in the matter of culture. Of course there is the Cultural Commendation for exceptional subjects, but it does not meet the case to which attention is specially called. Unless something is done we fear that amateurs will continue to visit the Shows chiefly as spectators.

Another interesting newspaper cutting is to hand. It is entitled, "'Some' plants: wonders and problems of the humbler life," by A. E. Crawley, and might be shortly described as an enquiry into the reason of things as they are. "It is doubtful," the writer remarks, "whether the animal world, self-conscious in mankind, really understands the plant. . . The plant feeds our organisms with starchy food and protein and what not, and our souls with beauty. But not even Bergson can give its absolute meaning. Maeterlinck explains it on the anthropomorphic principle, as if flowers were human beings on the make, which is absurd. The plant is one sort of life-stuff, or protoplasm, which has gone one way, the way of sitting still, and of being therefore used; the animal is of the other sort, which has gone another way, the way of running about. . . The plant . . . has no nervous system, whatever Mr. Francis Darwin may say. But often, by a process of convergence, it approaches the condition and capacity of the animal, while the animal often tends to approach it. Each of the two halves of life aims at meeting somewhere and somewhen."

In trying to get some idea of what a flower is, and what vegetables mean when regarded from the non-culinary standpoint, a good many pertinent questions are asked, until we come to

"THE PROBLEM OF BEAUTY.

"The blossom of May flowers, . . . what does it mean? Why, to be more exact, all this beauty? It is always worth living another year to see once more, but why? The Orchids, those fleurs de mal, give us a little insight into the problem. Their strange and splendid beauty suggests advertisement for an insect public. The Orchid is double-sexed, but, as Darwin showed, abhors self-fertilisation. His little book on this subject is one of the greatest achievements in botany, and may be understanded by anyone. Bees, butterflies, flies, and insects, all and sundry, make a living out of flower-honey. The structure of the Orchid-bloom is such that the pollen-masses stick to the insect's head or back and are extracted on its exit. They cannot fertilise any stigma of the same plant, for they remain upright for sufficient time to allow the insect to visit all its flowers. But after this interval they contract and bend forward, so that when the insect visits the flowers of the next plant they are in a position to fertilise them. The time-limit here is beautifully calculated.

"Paramount among paradoxes is the bee-Orchis, growing on English chalk-slopes. It was Darwin's bête noir, for it is self-fertilising in spite of its provisions for cross-fertilisation. Many of these Orchids, as everybody knows, ape in their appearance the form and colour of butterflies, bees, and other insects. The explanation, as far as it goes, is that this mimicry attracts other insects, who wonder what food is being sampled by their kindred. There is one Orchid whose tiny flowers flicker like a bunch of flies at the sound of your voice. The Cirrhopetalum has in the centre of its blossom a lip which looks like a fly balancing. A real fly which undertakes the adventure alights on it only to be upset into the machinery of the flower. The mimic fly is a balance-trap."

The author then goes on to speak of other floral developments, and examples of mimicry that do not concern Orchids, which we need not follow. And he asks, "Can natural selection—blessed word!—explain?" We should put the case the other way about, and enquire whether the facts can be explained on any other theory? Nothing succeeds like success, and all unconsciously they pass from one development to another, as circumstances permit, following the lines of least resistence. The great problem seems to be *how* they do it.

Since the above was written a very interesting communication has been

received from Prof. Dr. A. Zahlbruckner, Keeper of the K.K. Naturhistorisches Hofmuseum, Vienna, which appears on another page, and will be read with the greatest satisfaction by Orchidists throughout the world.

MILTONIA VEXILLARIA AND ITS VARIETIES.

THE popular Miltonia vexillaria exhibits two distinct kinds of variation. The first may be called colour polymorphism, and it adds greatly to its charm as a garden plant. The colour variations, or subvarieties, are numerous, and shade off into each other in such a way that it is difficult to separate them absolutely, though the more distinct have received varietal names. Individual variations they might be called, as they occur for the most part among plants from the same importation or locality. The other kind of variation may be termed geographical, as it represents the influence of locality, and affects the whole of the plants from some definite area, without excluding individual variation. Geographical variation, in the case of Miltonia vexillaria, is very marked, though the details are at present imperfectly known, and the object of this paper is to collect what has been recorded on the subject, in the hope of eliciting further information on a point which is of considerable interest to Orchidists.

The species was originally discovered near Amalfi, in the province of Antioquia, it is believed by Bowman, and introduced to cultivation by Chesterton, who sent living plants to Messrs. James Veitch & Sons in 1872, after unsuccessful attempts by Wallis and Roezl. Other localities were soon discovered, and in 1889 a very interesting account of the distribution of the species was given by Consul F. C. Lehmann (*Gartenflora*, xxxviii. p. 350).

The species is widely diffused, and its southern limit, according to Lehmann, is on the western slopes of the snow-capped Huarmi-Urcu, and the volcano of Coatacachi, in the provinces of Esmeralda and Imbabura, in northern Ecuador. Here, and on the western slopes of the volcanoes of Chiles, Cumbal, and the Pico de Mallama, in southern Colombia, occur the varieties Lehmannii, albicans, and Measuresiana. The species thence spreads northwards along the central mountain region and the western slopes of the Western Cordillera, as far as the sources of the rivers Sinu and San Jorje, and the northern slopes of the Cerros Leon, Sassafral, Centulla, and Paramillo, in the province of Antioquia, in North Colombia. Over this region it occurs in greater or less quantity in isolated patches. Among the best-known stations are the Central Cordillera, between Frontino and Sonson, on the Tavallones de Cali, the undulated plateau of Popayan, and the western slopes of the volcanoes of

northern Ecuador. Some other localities are mentioned. The whole region in which Miltonia vexillaria grows is well defined and similarly bounded. With one exception, the variety albicans, which occurs at 4000-4500 feet elevation on the river Cuaiquer, the lower and higher limits of Miltonia vexillaria are almost everywhere about 4750 and 6500 feet above sea-level.

The average mean temperature of the year between these limits fluctuates between 62° and 67° Fahr.. that of the variety albicans from 68° to 70° F. The extreme daily range when the mornings are clear and the days bright is from 53° F. minimum to 77° F. maximum. Generally speaking, Miltonia vexillaria is found isolated in places influenced by local climatic conditions, being most abundant at its medium altitude. It always occurs on the borders of the denser mountain forests which have below them either open or park-like stretches covered with low bushes or coarse savannah grass, and above the extremely humid and almost impenetrable and luxuriant forests that cover the Cordilleras at that altitude.

The characteristic hygrometric peculiarity of the whole region over which Miltonia vexillaria is spread is, that it is constant nearly throughout the year; even in what is called the dry season the air is only relatively less humid. The daily changes in the weather may be thus summarised:— During the dry season the day breaks clear, but soon after sunrise a thick mist settles over the forest till about 10 a.m.; it then ascends higher, and the rays of the sun begin with difficulty to penetrate it; the air is then filled with a bluish mist that shuts out the distant view. A light shower of rain falls in the afternoon about two o'clock, which often continues till evening, when it gives place to a thick mist. During the rains there is generally a light wind blowing towards the mountains from the lower river valleys. In the rainy season the circumstances are nearly the same, except that the rain is more copious, the drops heavier, and the showers of longer duration. At times the rain is continuous for several days in succession; the atmosphere is then at the saturation point.

Of the geographical varieties Lehmannii was the first to be recorded (Rchb. f. in *Gard. Chron.*, 1880, i. p. 586), dried specimens having been sent by Lehmann. The locality was vaguely recorded as "Western Andes of South America," but this can now be added from the Lehmann Herbarium, where the specimens are localised as from San Miguel and Pususquer, West Andes of Tuquerres, flowering in March, 1880. They are smaller than in the type, but larger than those of the variety ecuadorensis, collected at Chiguinda and Cuchipamba, on the Eastern Andes of Sigsig, Ecuador, blooming in May. Var. Lehmannii was afterwards cited by Lehmann as a synonym of ecuadorensis (*Gartenfl.*,

xxxviii. p. 353), but the flowers in the Lehmann Herbarium are constantly so much smaller that the two are evidently distinct.

The variety superba was added in September 1881 (Rchb. f. in. *Gard. Chron.*, 1881, ii. p. 364), as a plant collected in New Granada by Schmidten for Mr. F. Sander, which had flowered in the collection of R. P. Percival, Esq., of Southport. It was painted by Mr. John Day on October 26th, 1882 (*Orch. Draw.*, xxxi. t. 25), when its history was given as follows:—

"This unique and splendid variety was sold in bloom at Stevens' this day. The owner of it, Mr. Barth, a farmer in Kent, who buys a good many Orchids, bought it at Stevens' among some plants just imported two or three years ago, and paid only a few shillings for it. It was knocked down, after keen competition between him and Baron Schröder and Mr. W. Bull, to Sir Trevor Lawrence, Bart., M.P., for £75 12s. I made a pencil sketch of it on the fly sheet of a letter in my pocket, and showed it to Sir T., who sat next to me when it was sold, and he immediately picked off a flower and gave it to me to finish my drawing by, which was really a right regal thing to do, and which I do not think any one else would have done."

This appears to have been the first of the autumn-blooming varieties, though the character is not mentioned. It has flowers of moderate size, bright rose in colour, with a large crimson, somewhat radiate blotch on the base of the lip. It may be the blotched form of the following. There is a published figure of Sir Trevor's plant (*Orch. Alb.*, iv. t. 171).

The variety rubella was recorded in 1892 (*Veitch Man. Orch.*, viii. p. 111), though there may be an earlier record which has been overlooked, for Lehmann gives it as a geographical form first gathered by Wallis in 1876, and subsequently by himself, and it was figured by Mr. Day on October 27th, 1883 (*Orch. Draw.*, xxxix. t. 9), when seen in flower at Mr. W. Bull's. Mr. Day remarked: "This variety is quite peculiar in flowering at this time of year. Mr. Bull has several plants in bloom all exactly alike, the flowers smaller than the summer-blooming variety, and quite as dark as here represented. It is a very pretty variety and valuable blooming at this season." This is the earliest special mention of the autumn-blooming character that we have found. Lehmann's Herbarium specimens are localised as Forest of Tocota and El Salado, West Andes of Cali, flowering in March and April and October, indicating a double flowering season in the wild state.

We have not seen dried specimens of the other varieties mentioned by Lehmann, but Measuresiana appears to be the same as the earlier variety alba (*Orch. Alb.*, v. t. 204), a pretty white-flowered variety of moderate size. It came from New Granada. Of var. albicans we only know Lehmann's record. Lastly we may mention a small flowered Peruvian form of which

flowers are preserved at Kew. They were sent by Messrs. Linden, and closely resemble those of the variety ecuadorensis.

We hope some of our readers may be able to supplement this information. The other varieties that have been recorded do not appear to have a distinct geographical origin.

HINTS FOR COLLECTORS.

UNDER this title is given in a recent issue of the *Kew Bulletin* (pp. 97-116), a very complete set of instructions for the convenience of collectors and travellers who may desire to send home plants in the living or dried condition, or who may be interested in collecting plants or plant products from the economic point of view. It is arranged under the heads Horticultural, Museum and Herbarium Departments, and under the first we find a note that should be useful to some of our readers :—

ORCHIDS.—Those kinds which have fleshy pseudobulbs, such as Dendrobium, Epidendrum, Cattleya, Catasetum, and Odontoglossum, should be collected at the end of the growing season, dried a little by exposure, and then packed in light boxes in dry wood shavings. Wide, shallow boxes are preferable to deep boxes; the latter, if used at all, should have battens placed across to support the upper layer of plants and prevent the others being crushed. A few holes should be bored into the sides of the boxes for ventilation. They may be sent by steamer and labelled "For cool, dry place in hold." Phalænopsis, Vanda, Cypripedium, and all such Orchids which have no fleshy stem or pseudobulb, should be packed in close boxes or Wardian cases with damp moss or soil. If possible, they should have attention during the voyage. Tuberous Orchids may be sent as advised for tubers—that is to say, they should be gathered when mature, kept dry for a few days until the foliage has withered, and then be packed in a wooden box in wood shavings, paper or any dry and light material that will not become mouldy. If the rhizomes are small or thin the packing materials may be slightly moistened.

The instructions for collecting Herbarium specimens are very complete, and include the selection of materials, drying and labelling, and packing the specimens. They should be fully localised and any character or information that will not be shown in the dried specimen should be written down.

BULBOPHYLLUM AMPLEBRACTEATUM.—A curious Bulbophyllum of unknown origin was exhibited by Messrs. Sander & Sons at the R.H.S. meeting held on June 3rd, of which a flower was brought away for comparison. It apparently belongs to the Malayan B. amplebracteatum, which was described in 1862 (Teijsm. & Binn. in *Tijdschr. Nederl. Ind.*,

xxiv. p. 307), and is said to be a native of Ceram. There is a single flower preserved at Kew, sent by Mr. J. J. Smith, from a plant cultivated in the Bogor garden. It is allied to B. orthoglossum, Kränzl. (in *Gard. Chron.*, 1908, i. p. 406, fig. 182), and has a quite similar spike, with compressed bracts, and two or three flowers, but the petals are much more acuminate, and the lip suddenly narrows below the middle, and is prolonged in a recurved tail-like appendage. B. mandibulare, Ridl., is a larger species of the same affinity.—R.A.R.

AGANISIA BRACHYSTALIX.

THERE is an interesting Trinidad Orchid whose history has not yet been cleared up. In June, 1895, a specimen collected on the Aripo Savannah, Trinidad, was submitted to Kew by Mr. T. I. Patter, St. Anns, Trinidad, as "a terrestrial species, said to be Cyrtopodium cristatum, and having white flowers with a lemon yellow crest to the lip." Comparison showed it to be the C. cristatum, Griseb. (*Fl. Brit. W. Ind.*, p. 630), but not the original C. cristatum of Lindley. It was therefore named C. Grisebachii, Rolfe, and under this name was recorded by Mr. Patter in a paper on "An Orchid Collection in Trinidad" (*Orch. Rev.*, iii. p. 276). Mr. Patter remarks: "It much resembles a grass when out of bloom, and the lovely white blossoms, with one lemon yellow stain on the lip, are like small flowers of Diacrium bicornutum. The flowers last a long time in beauty, and the plant is only to be found in one part of Trinidad, and there it is fast disappearing owing to the advancing tide of civilisation." The habit was not that of a typical Cyrtopodium, and subsequent dissection showed it to have the hippocrepic crest of the *Zygopetalum* group. There is a *Z.* brachystalix, Rchb. f., described in 1863 (*Walp. Ann.*, vi. p. 660), based on a specimen said to have come from Trinidad, and although there is no clue as to where Reichenbach saw it we suspect that it may have been one collected by Crüger or Purdie, from both of whom there are specimens at Kew. This also was included by Grisebach in his *Flora* (p. 629), but from description only. There is at present no clue as to where the original specimen is, but from a comparison with the dried specimens already mentioned we believe it to be the plant which Grisebach incorrectly called Cyrtopodium cristatum, Lindl., and the question now remains as to its correct genus. In habit and structure it agrees with Aganisia, and in fact the species is very closely allied to A. alba, Ridl., a native of Mt. Roraima, British Guiana. It has been collected at the Aripo Savannah on five different occasions, by Crüger, Purdie, in July, 1848, Alexander, in January, 1893, Patter, in May, 1895, and Broadway, in February, 1911, and is apparently a very local plant. R. A. R.

LT.-COL. SIR GEO. L. HOLFORD, K.C.V.O., C.I.E.

WE have much pleasure in giving a recent and excellent portrait of Lt.-Col. Sir George L. Holford, one of our foremost amateur Orchidists, from whose fine collection at Westonbirt, near Tetbury, Gloucestershire, so many excellent exhibits are sent to the meetings of the Royal Horticultural Society and elsewhere. Sir George has inherited the tastes of his father, who was a prominent Orchid grower over sixty years ago—it was in the collection of Mr. Robert S. Holford, at Westonbirt, that the remarkable

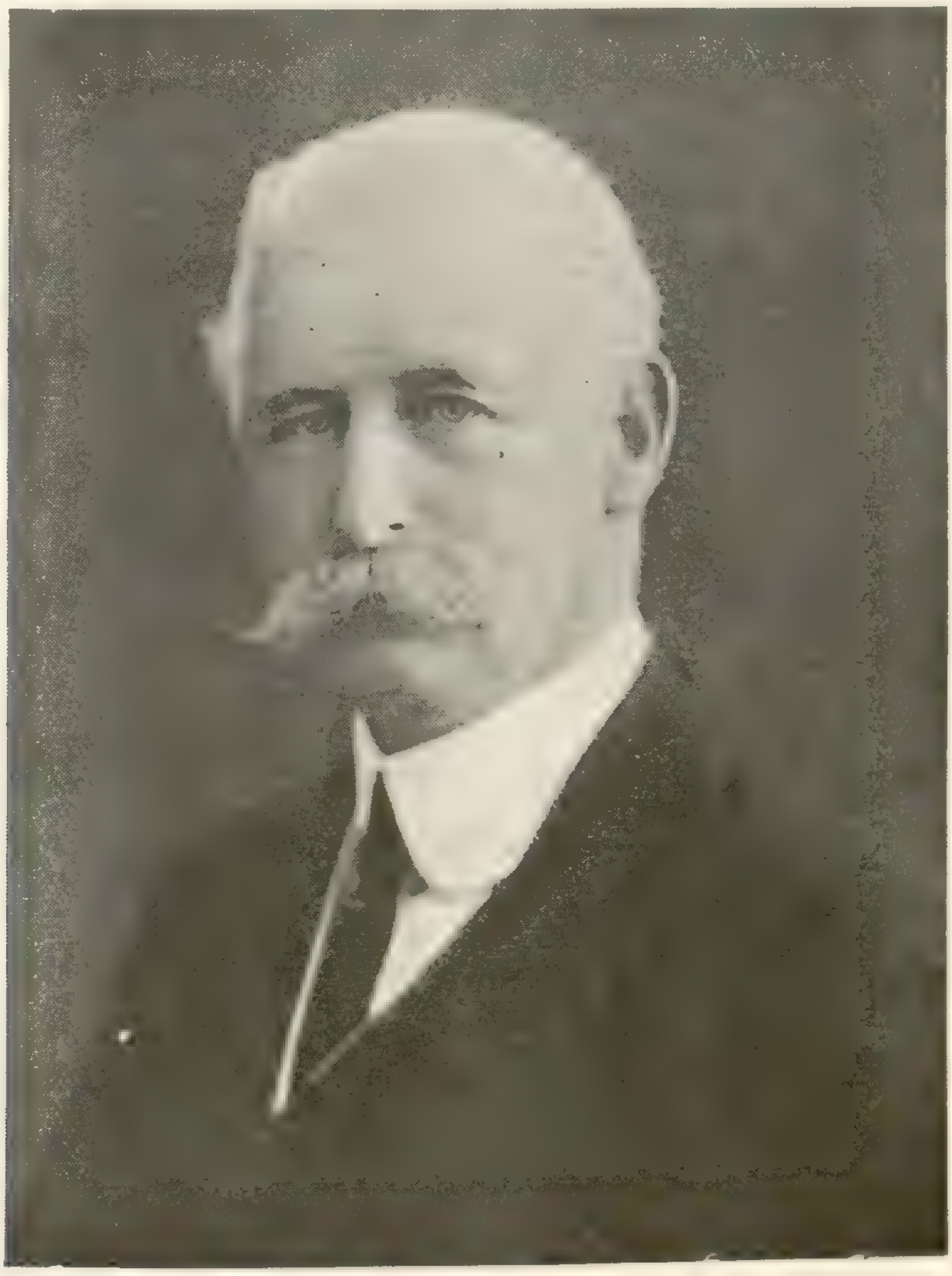

Fig. 23. LT.-COL. SIR GEORGE L. HOLFORD, K.C.V.O., C.I.E.

example of "Cycnoches ventricosum and C. Egertonianum on the same raceme," as it was termed by Lindley, appeared as long ago as 1844—and it may be interesting to add that when we had the pleasure of seeing the collection six years ago a few interesting plants were pointed out that had been there for over half a century. The present owner of Westonbirt succeeded to the estate on the death of his father in 1892, and since then the collection has been completely modernised and extended, a complete set of new houses built with all the latest improvements, and under the care

of Mr. H. G. Alexander, now stands *facile princeps* among amateur collections. A full account of the collection has been given in our pages (*O.R.*, xvi. pp. 321-328, 355-357). Visitors to the R.H.S. meetings are familiar with the quality and artistic arrangement of the groups staged from time to time, and we need only recall the magnificent group, three-hundred feet in extent, staged at the Ghent Quinquennial Exhibition in 1908, and the still more brilliant group staged at the Royal International Horticultural Exhibition, Chelsea, two years ago, "the best that has ever been staged in this or any other country," which gained the King's Cup. Sir George has long been a deservedly popular member of the Council of the Royal Horticultural Society, and a Vice-President of the Orchid Committee. He was an Equerry to the late King Edward from 1892 to 1910, since when he has been Equerry to Queen Alexandra and an extra Equerry to his Majesty the King. For the loan of the block here reproduced we are indebted to the courtesy of the Editor of *The Garden*.

ORCHIDS AT JARVISBROOK, SUSSEX.

ONE by one the old Orchid firms are disappearing from the metropolitan area, being driven by the exigencies of space, or the prevalence of fog and the absence of sun during the winter months, to seek fresh fields and pastures new for the culture of their plants. Over thirty years ago the firm of Messrs. Hugh Low & Co., so long established at Upper Clapton, removed to Bush Hill Park, Enfield—then open fields and market gardens—but after some twenty-five years of renewed activity the firm was dissolved, though the new firm of Messrs. Stuart Low & Co. arose on the old site. By this time the builder and the fog had followed, and although the Orchids succeeded very well from May to October some distressing results were seen during the winter months, especially among Orchids that flower during this period, so that another move has been arranged, for the Orchids, this time to a new branch establishment at Jarvisbrook, Sussex, where the plants are now comfortably settled, and already show decided appreciation of their improved environment.

The new establishment of Messrs. Stuart Low & Co. is situated well in the Sussex heights, some 500 feet above sea-level, and is so sheltered by surrounding hills as to get all the advantages of the altitude in clear air and sunshine and yet is protected from the wind. The journey from London is through some of the most lovely scenery in Surrey and Sussex, and is, in fact, quite a holiday jaunt, whether taken by rail or motor. The London, Brighton, and South-Coast Railway have now started a direct and accelerated service, and most trains avoid the change at Groombridge.

The Nurseries are some ten minutes walk from Crowborough Station, on the side of a gentle slope, and are about eleven acres in extent.

Twenty-five houses are devoted entirely to Orchids, and these are arranged in two blocks, and heated by a set of Robin Hood boilers, connected in pairs, so that either can be worked separately or cut off for repairs if necessary. The range furthermost from the road consists of eleven houses extending from a long Corridor 200 feet long by 20 feet wide, and divided into two. This Corridor has a northern aspect, and is kept as cool as possible, and largely used for plants required for immediate use or that are being held back for future exhibitions. It contains batches of Cattleyas, Oncidiums, Dendrobiums, Cymbidiums, &c., and we noted in bloom a lot of Cattleya Mossiæ and Mendelii, some well-flowered Dendrobium Dalhousieanum and Oncidium pulvinatum, and a good example of O. serratum, with batches of O. incurvum and Wentworthianum in spike. Among miscellaneous subjects we noted the type plant of the striking Lowiara insignis (Sophronitis grandiflora × Brassolælia Helen) just expanding, and it may be added that elsewhere was a second plant of the batch that has not yet bloomed.

From the right hand side of the Corridor extend a range of eleven houses, 125 feet long, the first two 25 feet wide and the rest 12 feet. They run north and south, and have top ventilators, worked by a lever, and shutters at the side, protected by iron gratings. Both canvas and lath roller blinds are used, the latter running horizontally, and the floors are of soil, with cinder paths, so as to give off a constant supply of atmospheric moisture. A long tank extends transversely across the range, so that every house has a good supply of water in the centre. The two larger houses have eight rows of hot water pipes, and are filled with batches of imported Cattleya labiata, Schrœderæ, Trianæ, Harrisoniana, and others, Dendrobium Dalhousieana, and a variety of miscellaneous subjects, all in thriving condition, but mostly out of flower.

The smaller houses have four rows of pipes, and the first house contains the special varieties of Cattleyas, for which the establishment is famous. Numerous choice white forms were pointed out, including C. labiata, Trianæ, Schrœderæ, Mossiæ, Warneri, Gaskelliana, Mendelii, including the one called Stuart Low, one of the finest yet seen, the fine white form of C. Loddigesii known as Stanley's var., in sheath, the rare C. Warscewiczii rochellensis, Frau Melanie Beyrodt, and Firmin Lambeau, the latter a choice thing which received a First-class Certificate and a Gold Medal from the R.H.S. Show in 1912. Others pointed out were C. O'Brieniana alba, the form of C. Hardyana with white sepals and petals, and a good batch of C. Dusseldorfii Undine. The richly-coloured C. Whitei was in bloom, and C. intermedia cœrulea was just over. A good plant of C. Ballantineana was

in sheath, and a fine Læliocattleya Aphrodite in bloom, having pure white sepals and petals and a rich purple lip. We noted also batches of Brassocattleyas and allies, a good plant of Lælia tenebrosa, Walton Grange variety, and Aërides odoratum album.

The next house is chiefly devoted to choice Cattleya and Læliocattleya hybrids, including both primary and secondary crosses, in vigorous health, and some of them producing sheaths. Those specially pointed out were L.-c. bella, a handsome autumn-flowering kind, Lustre, Haroldiana, Pizarro, luminosa, Firminii, one of M. Lambeau's gems, Cattleya Hardyana, Iris, Adula, Thurgoodiana, &c., &c. We also noted a batch of unflowered seedlings from Cattleya Mantinii nobilior crossed with a dark C. Fabia, a few of which flowered last year, and were named C. Moira, a richly-coloured form. Some plants used as seed parents were bristling with pods, and nestling away in a corner was a fine lot of Sophronitis grandiflora crosses, including many of the well-known kinds. Sophrocattleya Doris was specially pointed out as having been raised both ways, from S. grandiflora and C. Dowiana, and the two were somewhat diverse in habit. We suggested adding the lost S.-c. Batemanniana to the list, for we noticed both S. grandiflora and C. intermedia in bloom.

A feature of the Dendrobium house is that there are no stages, the plants being suspended from the roof. One side was mostly filled with D. Phalænopsis in thriving condition, and part of the other with D. formosum giganteum, the long-bulbed summer-flowering variety, some of which were flowering freely and making a fine show, one short growth producing a spike of four flowers direct from the base. We noted also a good batch of D. Brymerianum and Dearei in bloom, with other species and choice hybrids which we cannot stop to enumerate. Here was also a good plant of the remarkable New Guinea Bulbophyllum Fletcherianum with glaucous leaves, and B. Lobbii, with seven buds.

Three succeeding houses were filled with Odontoglossums, and other cool-growing subjects, and some brilliant Odontiodas brightened up the white of Odontoglossum crispum and Pescatorei, of which there were many in bloom, with forms of O. Wilckeanum, several Cochlioda Nœtzliana, Epidendrum vitellinum, Oncidium varicosum, Masdevallia bockingensis, cucullata, and others, making a fine display. A lot of hybrids include batches of Odontoglossum Rolfeæ, Jasper, Aireworth, armainvillierense, &c. We noted batches of O. grande, O. Williamsianum, and Oncidium varicosum, O. incurvum album in spike, Cymbidium hybrids, Sophronitis grandiflora, and various botanical things, with a plant of Dendrobium Victoria-Regina. Flat tiles are largely used in the establishment on the stages, as being porous they absorb a lot of water, which is steadily given off by evaporation, and is conducive to a moist atmosphere.

Passing on to another house we found a large batch of Phalænopsis amabilis Rimestadiana with hundreds of spikes, including an albino with the spike pure green, a nice lot of P. Aphrodite, Schilleriana, Stuartiana, violacea, and the rare P. intermedia Portei in bloom. Laid out under the benches was an importation of botanical curiosities, some of which are of considerable interest.

The seedling divisions are very interesting, and contain seedlings in all stages, from germinating seeds to plants which every now and then push up a sheath. They are all carefully recorded and numbered. The seeds are sown in cases, and in bright weather tissue paper is laid over the seedlings to provide additional shading. We noted Cattleya labiata Purity × Gaskelliana alba, C. Hardyana alba × Warscewiczii Frau Melanie Beyrodt, C. Iris × Dowiana, Lælia tenebrosa Walton Grange var. × C. Dowiana, L.-c. Haroldiana Bronze King (F.-c. C.) × C. Dowiana, &c. But we cannot enumerate them here. To adopt a classic phrase, we must "Wait and see."

At this corner leading out of the Corridor is the packing shed, which is well adapted to the purpose, and where the work was actively in progress.

At a little distance away, and nearer to the road, is another lot of twelve houses, four of them 100 feet long by 22 feet broad, with centre step stages for Cattleyas, and here we saw an example of the overhead pipe along the centre of the house, a system not often met with in Orchid culture. One house is full of C. Mossiæ, and another of C. Mendelii, many of them in flower and making a fine display. A third is principally C. Warscewiczii, many showing sheaths, from which much is expected. There was also a batch of C. Gaskelliana, with a few early ones in bloom, and a lot of C. Leopoldii, amethystoglossa, Clarkii, Atalanta, Miss Williams, and others useful for cut flowers or decorative purposes. Lastly, the whole of one side was full of Renanthera Imschootiana on both sides of the path, with many hundreds of spikes in full bloom, the brilliant crimson flowers making a remarkable display.

The remaining houses are smaller, 75 feet by 11½ feet. Two of them are devoted to Cypripediums, including C. insigne Sanderæ and Harefield Hall var., in quantity, a lot of C. Maudiæ, callosum Sanderæ, Leeanum varieties, aureum, Thalia, Gaston Bultel, Germaine Opoix, &c., in fact a representative collection of the best hybrids. Among a batch of C. caudatum several plants were in flower or spike, with its brilliant hybrid C. Schrœderæ.

Then came a house of Vanda cœrulea, another of Lælia anceps, including a representative collection of the best white varieties, with a fine batch of Oncidium splendidum, and two houses of Dendrobiums, including a great quantity of the large-flowered D. Wardianum Lowianum,

which by a little manipulation can be had in flower almost from Christmas to May. The Dendrobiums are for the most part suspended from the roof, stages being dispensed with. Examples of D. Parishii and superbum were in bloom, with a few others.

A house of Miltonias made a brilliant display. with M. vexillaria in the greatest profusion and variety, a few M. Bleuana and M. Phalænopsis, and examples of M. Roezlii and var. alba. Thence we passed into houses containing Cymbidiums, Lycastes, Maxillarias, and a lot of miscellaneous subjects, and noted examples of Brassavola Digbyana, a few interesting Bulbophyllums, Erias, Dendrobium Jamesianum, Oncidium unicorne, Maxillaria Sanderiana, Cœlogyne speciosa, Dendrochilum latifolium, Microstylis congesta and Wallichii, and others in bloom which considerations of time and space compel us to omit.

The cultural department of this up-to-date and representative establishment is under the able charge of Mr. E. Tack, while the general manager, Mr. H. Barnard, has an experience of over half a century with Orchids, indeed he may almost be said to have grown up among them, and one of his earliest experiences was to take a plant of Cypripedium Stonei from Upper Clapton to Kew to be painted for the *Botanical Magazine*. It was over fifty-two years ago, but that day remains as one of his most cherished memories.

THE REICHENBACHIAN HERBARIUM.

[THE lapse of the period of twenty-five years during which the Reichenbachian Herbariam was to remain sealed up, under the provisions of the late Professor's Will, and our remarks at pp. 129, 130, have brought us several communications, and, in response to invitation Prof. Zahlbruckner, Keeper of the K.K. Naturhistorisches Hofmuseum, Vienna, has communicated a note as to the condition of the Herbarium and the period when it is likely to be available for reference. The following is a slightly abbreviated translation, and we thank Prof. Zahlbruckner on behalf of our readers.]

AFTER the death of Prof. Reichenbach, Dr. Dölling, of Hamburg, his executor, published in the German newspapers a notice requesting that all persons who had loaned specimens to the deceased should send in their claims within the necessary period. Several claims were sent in, which were handed over to us, but could not be dealt with then because of the stipulation that the cases containing the Orchids should not be opened until after the lapse of twenty-five years. All claims were duly noted, and were placed with the deeds concerning Reichenbach's collection and estate. We are at present occupied with looking over the Orchid

material, and in doing so all claims will be fully and carefully considered, for it is clear that Reichenbach had no right to make a will over other people's property. Whether the claims sent in still hold good is a legal question which may have to be decided. but only those claims can be considered that were made at the time.

On May 6th last, the twenty-fifth anniversary of Reichenbach's death, the embargo on the Orchid Herbarium imposed by his Will lapsed, and a Commission, consisting of the Authorities, with Officials of the Naturhistorisches Hofmuseum, satisfied themselves that the eight cases in which the Orchids arrived in Vienna from Hamburg were undamaged and complete. An inventory was taken, and at the same time the cases were opened and the condition of the contents ascertained. With the greatest satisfaction it can be stated that the material has not suffered during its confinement, either from insect attack or from damp, and in this respect the greatest care was taken to ensure perfect preservation. The arrangement of the materials was commenced as soon as the necessary provision could be made. Every bundle has to be carefully examined with regard to the ownership of its contents, and every sheet must be examined and mounted, for Reichenbach's material is loose in folded covers. This is tedious work that requires the greatest care. Again, the fact that Reichenbach's valuable analytical drawings are not with the plants entails further work, while copies from other authors are not written up, and must be identified. Of great value are the often beautiful water-colour drawings. The working up of the material is going steadily forward, and we hope to have it completed by the end of the year. The material can then be incorporated in our Herbarium, and will then be placed at the disposal of the scientific world for purposes of study.

DR. A. ZAHLBRUCKNER.

THE AMATEUR'S COLLECTION.

By C. ALWYN HARRISON.

THE main points in culture in the Amateur's Intermediate house this month are to keep a nice fresh yet moist atmosphere, and to shade when necessary. The former is obviously accomplished by judicious ventilation, both top and bottom ventilators being opened during the day, while a little top air at night will also be found of great benefit. Damping down between the pots and on the floors is often needed four times daily, if the house be in an exposed situation, or so constructed that it does not retain moisture readily, but in other structures thrice may be all that is required. The plants themselves should be gently sprayed overhead about 9 a.m. and again about 5 p.m., at this hour raising the blinds and giving

copious supplies of water to stagings and paths, whilst all ventilators should be closed for about an hour or so, and these means will effectively produce a nice growing atmosphere. Later in the evening the top ventilators should then be opened, enabling the plants to enjoy somewhat cooler and drier conditions at night.

Thrip and red spider are often troublesome at this season, and must be got rid of, and the new Phytophiline is to be strongly recommended, for its effect is more deadly on insect pests than any fumigant, and at the same time possesses none of the disadvantages attendant with nicotine preparations.

Now that the weather is hot and fire heat unnecessary, it may be wise to thoroughly overhaul the heating apparatus, to ensure it being in proper working condition when required somewhat later in the year.

Cattleyas gigas and aurea will now be in full growth, the former probably showing the flower buds at the base of the spike, and these grand Orchids should be suspended near the roof glass, where they will get the maximum amount of light, only shading them with tissue paper during the middle of the day. Being thus elevated, they will dry somewhat quicker than those plants more shaded on the staging, and the best way to apply water will be to immerse them in a tepid rain-water tank, holding them there until the *whole* compost is wetted.

Scale is sometimes troublesome about this season, and the favourite spots for this pest are on the old bulbs of Cattleyas, and often at the apex, where the leaf joins, but it also gives its attention to the rhizomes, and, when once allowed to become settled, is difficult to eradicate.

Dendrobiums will now be in full growth, and must receive a good supply of water daily, with liberal overhead spraying morning and evening, whilst the new growths should be periodically examined and neatly staked and tied.

Established plants of Vanda cœrulea will be in full root and leaf action, and much water and spraying can now be given, especially if exceedingly bright and sunny weather prevail, whilst plants of spring importation should be coming away very nicely.

Owing to this being the season of holidays, or much open-air recreation, many amateurs prefer to cultivate those species which will give a bright display during the long dull days of winter, but where a show of Cattleyas and hybrids is desired for this and the following month the following will give much satisfaction :—

Cattleya Gaskelliana, Warscewiczii (gigas), and Harrisoniana.

Lælia purpurata and tenebrosa.

Læliocattleya bletchleyensis, callistoglossa, Canhamiana, Dominiana, Nysa, Veronique, and others.

OBITUARY.

RICHARD LE DOUX.—We regret to hear, through the Secretary of the Manchester Orchid Society, of the death of Mr. Richard le Doux, of Marlfield, West Derby, Liverpool, an old member and exhibitor at the Society's meetings. Mr. le Doux has been an enthusiastic Orchidist for

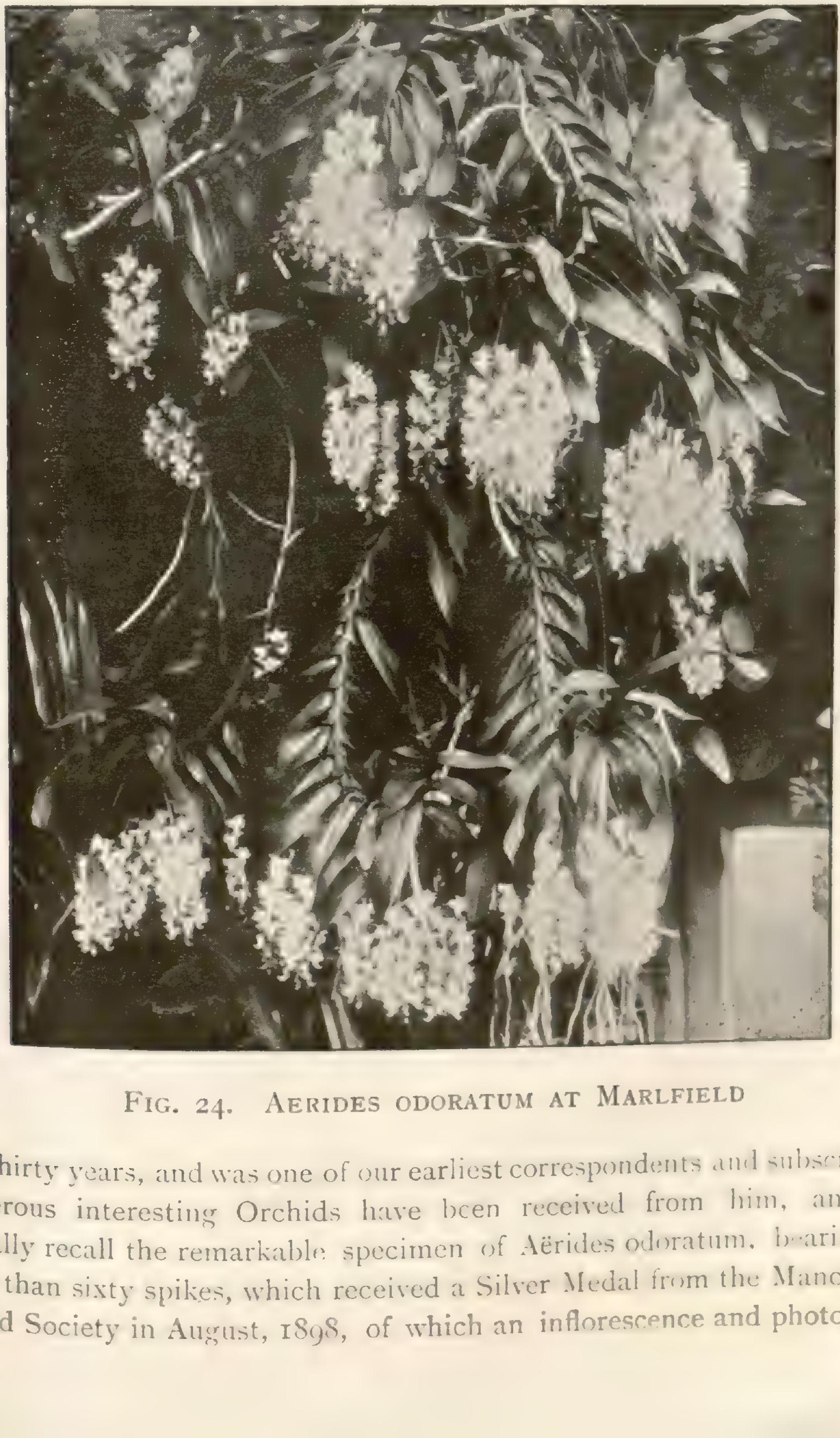

FIG. 24. AERIDES ODORATUM AT MARLFIELD

over thirty years, and was one of our earliest correspondents and subscribers. Numerous interesting Orchids have been received from him, and we specially recall the remarkable specimen of Aërides odoratum, bearing no fewer than sixty spikes, which received a Silver Medal from the Manchester Orchid Society in August, 1898, of which an inflorescence and photograph

were sent to us (*O.R.*, vi. p. 273, fig. 14). The latter is here reproduced. This plant has a very interesting history. It had been grown on a tree in the garden of Mr. E. S. Rand, of Pará, Brazil, where the climate seems to have kept it in a state of constant vegetative activity, but it had apparently not flowered. Its dimensions were five feet six inches high by about three feet across. At Mr. Rand's death the plant was brought home by Mr. John Cowan, jr., and on its arrival was purchased by Mr. le Doux, still attached to the branch on which it had grown. The removal had a remarkable effect on the plant, for it quickly produced no fewer than sixty spikes, and created quite a sensation when exhibited at the Liverpool News Rooms on August 10th, 1898, and at Manchester on the following day. A year later we had the pleasure of seeing Mr. le Doux's collection (*O.R.*, vii. pp. 297, 298), when the plant was producing forty spikes.

CALENDAR OF OPERATIONS FOR JULY.

By T. W. BRISCOE, Late Foreman of Messrs. Veitch's Hybridising Department.

WHERE sufficient labour is employed the repotting will now be well in hand, and the chief work will consist of keeping the houses in a nice growing condition, and the plants free from insect pests. Such subjects as Calanthes, Lælia anceps, with its numerous varieties, and Dendrobiums are growing freely, and must not suffer from dryness at the base. When the weather is hot the syringe may be freely employed between the pots, and this will prevent so much direct watering. When to water an Orchid is a difficult question to answer, and there is no doubt that more plants are killed through over-watering than otherwise. As a general rule it should become fairly dry before giving water, but each grower will have, to a large extent, to work out his own salvation in this respect. Much time will be occupied during the present month with shading, damping down, ventilation, &c., especially if we get a lot of intermittent sunshine.

RE-STAGING.—An opportunity will probably occur to re-stage the inmates of some houses, and I always consider this to be time well spent. Dirty plants are then often discovered, which ought to be cleaned at once, young growths can be given a good position, and any pots may be washed that are in need of it. Our object should be to keep the houses and plants clean, so that they will present a smart appearance. It is always a pleasure to look round a collection where these details are studied, even if there is not much in flower.

The holiday season will soon be upon us, and every worker in Orchid houses deserves at least a week.

SEEDLINGS.—Most of these are making progress, and in addition to repotting any that require it, a large number will be ready for pricking off into store pots. Cypripedium seedlings, &c., should be given a separate existence as soon as possible, and provided with more root room and fresh compost whenever it is necessary, irrespective of season. The idea of getting each seedling nicely established before the winter months arrive is obsolete, the result often being a starved weakling in the spring, and a host of plants needing attention which could have been done when work was a little slack.

Many seed pods will now be approaching maturity, and directly the seed is ripe it should be sown on prepared pots, or around the base of an established plant.

DENDROBIUMS.—The repotting of the thyrsiflorum group should now be completed, and the quaint D. Brymerianum will be in a fit condition for new compost if such is required. The pots or pans ought to be well drained, and the general potting mixture can be used. This remarkable Dendrobe must not be disturbed more than necessary, and, unless a larger receptacle is needed, a top-dressing with new soil will suffice. It should be grown in the warmest division, and kept moist at the base, but directly the growth is completed the plant may be rested in the Intermediate house. There are many Orchids that somewhat resent disturbance at the base, and when such plants are repotted a lasting material should be employed, while they ought always to be given water in moderation. If these two factors are borne in mind, no repotting will be necessary for at least three years, as the compost will keep in a sweet condition, and as the roots are not so likely to decay, the plants will thereby benefit. The amateur must, however, remember that extreme dryness is not recommended, as this is almost as detrimental to the well-being of the plant as over-watering.

D. CHRYSANTHUM will soon finish its growth, and after a short rest in the Intermediate house will begin to push forth its flower buds. Rather cool treatment should be meted out to this species, excepting during the short growing season.

D. MACCARTHIÆ is a somewhat difficult subject to grow successfully for any length of time, and perhaps keeping the plants in a hot stuffy house throughout the year is partly the cause. I believe that its life is shorter in our houses than most species belonging to this genus, and one of these days some enterprising individual may raise a batch of seedlings which would prove more amenable to cultivation than imported examples. Certainly it is worth trying, and other plants such as Phaius tuberculosus and simulans might also be treated in the same way.

LEPTOTES BICOLOR is a charming little plant which can be repotted after the flowering period. It requires a small shallow pan, and is best

suspended from the roof of the Intermediate house. It should never be very dry at the root, or the tiny pseudobulbs will soon show signs of distress, and the plants ought not to be allowed to exhaust themselves through overflowering. The interesting hybrid Leptolælia Veitchii can receive the same treatment.

LÆLIA PURPURATA.—This showy Orchid will now have passed the flowering stage, except a few that may have been late in starting into growth, and any specimens that need repotting, either on the score of a larger receptacle or through decayed compost, should be given attention when new roots are about to push out from the base of the current pseudobulbs. The rooting medium should consist largely of osmunda or AI fibre, with a sprinkling of chopped sphagnum moss.

CYPRIPEDIUMS that produce their flowers during the summer months, such as Stonei, Lawrenceanum, Rothschildianum, &c., may be given more root space where they are in a pot-bound condition. The same kind of compost can be used as advised in the January issue for the winter-blooming section. In a few collections some of the Selenipediums still exist, and if they were passed over earlier in the year they can also be repotted at this season. Being strong rooting subjects ample pot room must be provided, and some good quality loam incorporated with the peat and sphagnum moss. Selenipediums are very free flowering, and will succeed in a Corridor or similar position where for obvious reasons it is not advisable to put choice plants.

SOBRALIAS are, as a general rule, vigorous and easily-grown plants, which produce a large number of thick fleshy roots. When they cease flowering, any that are making smaller stems should be given a larger pot, and potted rather firmly in a mixture of good fibrous loam and peat, with a sprinkling of crushed crocks added to keep the whole porous. Other examples that do not require any disturbance may be assisted with a watering of weak liquid cow manure once or twice each week while they are growing freely. Sobralias will thrive either in the Cattleya or Intermediate houses, and I have seen some very fair plants cultivated among the Odontoglossums. Plenty of water is needed during the summer months, and even in winter a moderate supply is required, as they have no decided resting season. It is not advisable to disturb the ball of roots when repotting, because if the plant is divided into several pieces they take a long time to recover. A better plan is to propagate a few pieces at intervals, and grow them on to take the place of specimens which have either become too big for the houses or stemless in the centre.

ONCIDIUM CONCOLOR, after indulging in a short period of repose, will begin to push forth new growth, and about this date will be fit for repotting if such an operation is necessary this season. It will thrive if suspended

from the roof at the warmest end of the Cool division, and a few partly decayed oak leaves can be added to the usual mixture with advantage. This Oncidium is very floriferous, and small weak plants must never be permitted to flower or it will take them a long time to recuperate.

ONCIDIUM TIGRINUM enjoys much the same treatment as Odontoglossum crispum, although it responds readily to the conditions prevailing in the Intermediate house. Any repotting can be done this month, or when the new shoots are about two inches long. Frequent disturbance at the base is not desirable, and water must always be afforded in moderation. While the plants are at rest only sufficient need be given to keep the bulbs plump.

CATTLEYA WARNERI will soon show signs of flowering, and after the blooms are removed new roots will appear at the base of the current pseudobulb, when any that need it can be repotted. Any Orchids that are disturbed at this season must be well protected from the direct rays of the sun, and watered with discretion. When re-established more light and air can be allowed, and, if the water supply be gradually reduced, a second growth seldom occurs.

THUNIAS.—A few of these will be in flower, and as they pass this stage every encouragement should be given them to consolidate and ripen their stems before water is entirely withheld.

COOL HOUSE.—If the weather is seasonable it will be impossible to keep the temperature of this structure down to normal when the outside thermometer registers 70° or 80° Fahr., and a bright sun is shining on the roof. Under such circumstances the beginner is apt to throw open all the ventilators and doors to their fullest extent, but all practical Orchidists know that this is detrimental to cool Orchids. The usual method to adopt is to only admit air sparingly during the day, and then chiefly through the bottom ventilators. At night the top ones may be fully opened, and remain so until the morning. The blinds must be lowered just before the sun begins to shine on the glass, and another thickness of shading can be employed for a few hours about mid-day. When the atmosphere is dry a thorough damping of the floors and stages will be necessary, and a light spray overhead may be given, but this ought not to be overdone, or loss of foliage and a few young growths will be the result.

RENANTHERA PULCHELLA, Rolfe. — An interesting species, which appeared as a single plant in an importation of Renanthera Imschootiana with MM. A. A. Peeters & Fils., Laeken, Brussels, and flowered a year ago. It much recalls a small edition of R. Imschootiana in habit, but the numerous flowers are much smaller, having an expanse of little over an inch. The colour is buff yellow, with the apex of the petals and the lobes of the lip crimson. It received an Award of Merit at the Holland House Show to-day.

SOCIETIES.

ROYAL HORTICULTURAL.

THE meeting following the Chelsea Show was held at the Royal Horticultural Hall, Vincent Square, Westminster, on June 3rd, when there was a good display of Orchids, and seven medals were awarded. About a dozen plants were entered to go before the Committee, but no award was made.

Orchid Committee present: J. Gurney Fowler, Esq. (in the Chair), Messrs. J. O'Brien (Hon. Sec.), Gurney Wilson, de Barri Crawshay, W. Bolton, R. A. Rolfe, F. Sander, J. Wilson Potter, T. Armstrong, A. McBean, W. Cobb, J. Charlesworth, W. H. Hatcher, J. E. Shill, C. H. Curtis, A. Dye, E. H. Davidson, S. W. Flory, Sir Harry J. Veitch, and Sir Jeremiah Colman, Bart.

H. T. Pitt, Esq., Rosslyn, Stamford Hill (gr. Mr. Thurgood), staged an interesting and varied group, to which a Silver Flora Medal was awarded. It contained several good Cattleyas and Læliocattleyas, the graceful Oncidium phymatochilum and pulchellum, good examples of Miltonia vexillaria and Bleuana, two well-flowered Masdevallia muscosa, Chondrorhyncha Chestertonii, Cymbidium Sappho (Lowianum × I'Ansonii), raised in the collection, Anguloa Clowesii and Ruckeri, Maxillaria tenuifolia, Gongora galeata, several interesting Bulbophyllums, good forms of Odontoglossum crispum, percultum, Wiganianum, Edwardii, a few brightly-coloured Odontiodas, and other good things.

G. W. Bird, Esq., Manor House, West Wickham (gr. Mr. Redden), sent Odontoglossum armainvillierense Manor House var., a fine, well-blotched form, and Odontioda Phyllis (Odm. Lambeauianum × Oda. Bradshawiæ), prettily marked with red on a cream ground, and the lip rose with red blotches.

W. P. Burkinshaw, Esq., The West Hill, Hessle, E. Yorks (gr. Mr. Barker), sent Brassocattleya Rex (C. Rex × B. Digbyana), a very distinct and interesting hybrid, bearing two large greenish flowers most like the Brassavola parent in size and shape.

Col. S R. Clarke, C.B., Borde Hill, Cuckfield, showed Odontoglossum Ethelreda Borde Hill var. (triumphans × Edwardii) with dark blackish purple flowers.

Baron Bruno Schröder, The Dell, Englefield Green (gr. Mr. Shill), showed Odontoglossum crispum The Dell Sunrise, a remarkable form, having very round white flowers of great substance, the petals with a narrow purple margin, and the lip reduced in size.

R. G. Thwaites, Esq., Chessington, Streatham Hill (gr. Mr.

Hannington), sent three good home-raised Cattleya Mossiæ Wageneri, with examples of C. Mossiæ, Odontoglossum Pescatorei, Odontioda Charlesworthii, and others.

Sir Montagu Turner, Havering, Essex (gr. Mr. A. Humphrey), sent a light-coloured form of Cattleya Mendelii.

Messrs. Armstrong & Brown, Tunbridge Wells, staged a fine group, including many brightly-coloured Odontiodas and blotched Odontoglossums, O. Leonidas, a fine yellow flower blotched with brown, Cattleya Mossiæ Wageneri, some good C. Mendelii, Brassocattleya Veitchii, Læliocattleya Aphrodite, Fascinator, and other good things (Silver Flora Medal).

Messrs. Charlesworth & Co., Haywards Heath, staged a choice group of particularly well-grown plants, including the beautiful Miltonia Charlesworthii, M. vexillaria Lyoth, a handsome home-raised form with large rose-coloured flowers, Odontioda Charlesworthii, Odontoglossum Dora, a fine example of the bright rose Sarcopodium acuminatum, Sophrocatlælia Niobe, Cattleya Mossiæ King Edward VII., one of the finest white forms, and several beautiful Læliocattleyas (Silver Flora Medal).

Messrs. Stuart Low & Co., Jarvisbrook, Sussex, staged a fine group, in which white and coloured forms of Cattleya Mossiæ and Mendelii were well represented, C. Mendelii Fairy Queen having a broad purple band on the petals. There were also some good Renanthera Imschootiana, Phalænopsis amabilis, Dendrobium formosum giganteum, Miltonia vexillaria, Oncidium varicosum, Dendrochilum latifolium Cattleya intermedia cœrulea, Odontoglossums, &c. (Silver Flora Medal).

Messrs. Sander & Sons, St. Albans, staged a brilliant group, the centre being composed of a fine series of Læliocattleya Fascinator, Canhamiana, and Hyeana, L.-c. Sylph (L.-c. Hippolyta × C. Mossiæ), buff yellow, with a rose-purple lip, L.-c. Dryad (L.-c. Martinetii × C. Schrœderæ), pale buff tinged with rose, and the lip veined with purple, examples of Bulbophyllum virescens and triste, a form of Adioda St.-Fuscien with spreading segments, Brassia caudata, Panisea uniflora, Cœlogyne Dayana and integerrima, Angræcum Humblotii, Aërides japonicum, Gongora scaphephorus and G. quinquenervis, and some good Odontiodas, Odontoglossums, Cypripediums, and others (Silver Flora Medal).

Messrs. Hassall & Co., Chase Side, Southgate, staged a good group, including some fine Læliocattleya Fascinator and Canhamiana, Cattleya Mossiæ Empress Eugenie, a charming white form, and C. M. Hardyana, C. Sibyl (iridescens × Dowiana aurea), most like the latter, and having bronze rose sepals and petals, and a ruby purple lip with a yellow disc, and a few good Odontoglossums (Silver Banksian Medal).

Messrs. J. & A. McBean, Cooksbridge, staged a good group including a fine Cattleya Mossiæ Wageneri with eight flowers, C. M. St. Bernard,

Brassocattleya Irene (C. Mossiæ × B.-c. Mariæ), Læliocattleya Helios, yellow, with claret lip, Odontoglossum crispum xanthotes McBean's var., a very beautiful form, Odontioda keighleyensis, Charlesworthii, and Lambeauiana, some fine Miltonias, &c. (Silver Banksian Medal).

Messrs. Flory & Black, Orchid Nursery, Slough, staged an interesting little group, including several good Cattleya Mossiæ Wageneri and Reineckeana, Læliocattleya Aphrodite, and others, Brassocatlælia Albatross (B.-l. Veitchii × C. Mossiæ), white with a tinge of pink on the lip, Odontoglossum Jasper, some good Miltonia vexillaria, and others.

The meeting preceding a big show is usually marked by a falling off in the number of exhibits, and this was the case on June 16th, though there were fine groups from amateur exhibitors which gained Silver Flora Medals. Two other medals went to trade exhibits, the remaining awards being a First-class Certificate and a Cultural Commendation.

Orchid Committee present: Sir Harry J. Veitch (in the Chair), Messrs. J. O'Brien (Hon. Sec.), Gurney Wilson, R. A. Rolfe, F. Sander, J. Wilson Potter, Stuart H. Low, F. J. Hanbury, R. G. Thwaites, T. Armstrong, A. McBean, Walter Cobb, J. Charlesworth, C. H. Curtis, W. P. Bound, A. Dye, E. H. Davidson, H. G. Alexander, W. H. White, S. W. Flory, W. Bolton, and Sir Jeremiah Colman, Bart.

E. R. Ashton, Esq., Broadlands, Tunbridge Wells (gr. Mr. C. Young), received a Silver Flora Medal for a brilliant group, containing some finely-grown specimens of Miltonia vexillaria, M. Charlesworthii with seven flowers, a fine Lælia tenebrosa, Læliocattleya Aphrodite, Cowanii, Ganymede, and others, the beautiful Miltonioda Harwoodii, Odontonia brugensis, some fine Cattleya Mossiæ, Odontioda St.-Fuscien, O. Charlesworthii, O. Ashtonii (Odm. Armstrongiæ × C. Nœtzliana), well blotched with salmon red on a cream ground, Promenæa xanthina, some good Odontoglossums, and other interesting things, the whole forming a very fine display.

His Grace the Duke of Marlborough, Blenheim Palace, Woodstock (gr. Mr. G. Hunter), also received a Silver Flora Medal for a beautiful group, the leading feature of which was a series of Cattleya Mossiæ Wageneri, both home-raised and imported, good examples of C. M. Reineckeana, some fine Lælia Canhamiana and Aphrodite, and a row of Cypripedium niveum and bellatulum in front.

Earl Brownlow, Ashridge Park (gr. Mr. Robertson), showed two finely-grown specimens of Cœlogyne Dayana, bearing an aggregate of about twenty graceful racemes.

J. Gurney Fowler, Esq., Brackenhurst, Pembury, Sussex (gr. Mr. J. Davis), showed Odontoglossum Aquitania, a fine form, bearing a spike of

fifteen flowers, with a zone of purple blotches on the lower part of the segments.

H. S. Goodson, Esq., Fairlawn, Putney (gr. Mr. Day), sent Odontioda Patricia Goodson's var., having deep claret-red sepals and petals and some yellow markings on the lip.

F. M. Ogilvie, Esq., The Shrubbery, Oxford (gr. Mr. Balmforth), sent Odontoglossum crispum Queen Empress, a large rosy form.

Pantia Ralli, Esq., Ashtead Park (gr. Mr. Farnes), sent Cattleya Mendelii Knight Templar, a large and handsome form, and Odontoglossum Doris (crispum × Ossulstonii), bearing a spike of twelve very round, handsomely blotched flowers.

R. G. Thwaites, Esq., Chessington, Streatham (gr. Mr. Hannington), sent Læliocattleya Canhamiana Lady Wigan, a seedling Cattleya Mossiæ Wageneri, and a good form of Lælia purpurata.

Messrs. Stuart Low & Co., Jarvisbrook, Sussex, staged a fine group, including some good Miltonia vexillaria, examples of Renanthera Imschootiana, Phalænopsis amabilis, some good Cattleya Mossiæ and Mendelii, Dendrobium formosum giganteum, a fine example of D. pulchellum (Dalhousieanum), Oncidium Krameri, Brassocattleya Veitchii, Odontoglossums, and other fine things (Silver Flora Medal).

Messrs. Charlesworth and Co., Haywards Heath, staged a small group of finely-grown plants, including the handsome Miltonia Charlesworthii, specimens of M. vexillaria with numerous spikes, the rare Odontoglossum cordatum aureum, a fine O. armainvillierense, O. crispum xanthotes, O. Othello with three racemes, a few good Odontiodas, fine examples of Læliocattleya Martinetii, L.-c. Canhamiana alba with two spikes of five flowers each, Bulbophyllum Lobbii, and a good specimen of Ornithidium bicolor (Silver Banksian Medal).

Messrs. Hassall & Co., Southgate, sent Læliocattleya Canhamiana alba, L.-c. Aphrodite, and a good white Cattleya Mossiæ.

Mr. W. Shackleton, Highfield Nurseries, Great Horton, Bradford, sent Odontioda Brewii Highfield var., having claret-red sepals and petals, and the lip light purple with a yellow crest.

Mr. C. F. Waters, Balcombe, sent a good plant of Cœlogyne asperata bearing three racemes, with examples of Cattleya Mossiæ, Odontoglossum crispum and Læliocattleya Martinetii.

FIRST-CLASS CERTIFICATE.

ODONTOGLOSSUM KING ARTHUR (parentage unrecorded).—A remarkably fine hybrid, bearing a spike of six immense flowers, having rosy lilac sepals and petals, margined with white and heavily blotched with claret-purple, while the lip is broad and blotched with purple in front of the yellow crest. Exhibited by Messrs. J. and A. McBean, Cooksbridge.

CULTURAL COMMENDATION.

CYPRIPEDIUM LAWRENCEANUM HYEANUM BANK HOUSE VAR.—To Mr. W. Balmforth, gardener to F. M. Ogilvie, Esq., The Shrubbery, Oxford, for a group of four beautifully-grown specimens, bearing about sixteen flowers, one of the scapes being twin-flowered.

THE HOLLAND HOUSE SHOW.

The Great Summer Show opened at Holland House, Kensington, on June 30th, in glorious weather, and produced a magnificent display of Orchids, including Gold Medal Groups from Sir Jeremiah Colman, Bart. and Messrs. Sander & Sons, and a finely-grown collection from Lt.-Col. Sir George L. Holford, K.C.V.O., which gained the Lindley Medal for culture. The following is the Official list of Orchid Awards, but owing to the lateness of the date other details must stand over for our next issue:—

Gold Medals to Sir Jeremiah Colman, Bart., Gatton Park, Reigate (gr. Mr. J. Collier), and to Messrs. Sander & Sons, St. Albans, for groups.

A Silver-gilt Cup and the Lindley Medal for culture to Lt.-Col. Sir George L. Holford, K.C.V.O., Westonbirt (gr. Mr. H. G. Alexander), for a fine group.

Large Silver Cups, to Messrs. Flory & Black, Orchid Nursery, Slough; to Messrs. Stuart Low & Co., Jarvisbrook, Sussex, and to Messrs. Mansell & Hatcher, Rawdon, E. Yorks., for groups.

Silver Cups, to Messrs. Charlesworth & Co., Haywards Heath, Sussex, and to Messrs. E. H. Davidson & Co., Twyford, Berks, for groups.

Silver Flora Medal, to Mr. C. F. Waters, Balcombe, for a group.

Silver Banksian Medal, to Mr. H. Dixon, Spencer Park Nursery, Wandsworth Common, for a group.

FIRST-CLASS CERTIFICATES.

CATTLEYA IRENE (C. Suzanne Hye de Crom × C. Mossiæ Wageneri).—A charming albino of excellent shape. Exhibited by J. Gurney Fowler, Esq., Brackenhurst, Pembury (gr. Mr. Davis).

MILTONIA VEXILLARIA ILLUSTRIS.—A beautiful form, bearing two racemes of five flowers each, the sepals well recurved and bright rose in colour, and the lip much paler, with a radiating rich crimson blotch at the base. Exhibited by Messrs. Sander & Sons, St. Albans.

ODONTONIA CLEVERLEYANA (M. vexillaria Leopoldii × O. Rolfeæ).—A very charming thing, most like the Miltonia in shape, and the colour white, closely dotted with purple all over, and with a pair of orange-red blotches and a few similar lines at the base of the lip. Exhibited by Messrs. Mansell & Hatcher, Rawdon, E. Yorks.

AWARDS OF MERIT.

CATTLEYA WARSCEWICZII VAR. METEOR.—A fine form, with a remark-

ably brilliantly-coloured lip. Exhibited by Lt.-Col. Sir George L. Holford.

LÆLIOCATTLEYA APHRODITE VAR. OUR QUEEN.—A very fine form, fairly typical in shape and colour. Exhibited by Messrs. Stuart Low & Co.

MILTONIA SANDERÆ VAR. ENCHANTRESS.—A charming form, with a bright carmine red mask at the base of the lip. Exhibited by Messrs. Sander & Sons, St. Albans.

ODONTOGLOSSUM EXIMIUM VAR. SOLUM.—A very beautiful form, bearing a spike of seventeen flowers of excellent shape, and the colour of an uniform bright violet purple, with a narrow white margin to the segments. Exhibited by Messrs. Charlesworth & Co.

ODONTOGLOSSUM INVINCIBLE (Denisoniæ × eximium).—A superb form, bearing a spike of eight very finely-shaped flowers, with a zone of confluent bright red-brown blotches, leaving the apex and margin white. Exhibited by Messrs. Sander & Sons.

RENANTHERA PULCHELLA (see p. 213).—Exhibited by MM. A. A. Peeters and Fils, Laeken, Brussels.

VUYLSTEKEARA INSIGNIS (Miltonia Bleuana × Odontioda Charlesworthii).—A distinct and striking novelty, bearing flowers most like the Miltonia parent in shape, and the colour primrose yellow, with a cluster of light brown nearly confluent blotches on the lower half of the petals, and the crest of the lip orange, with a zone of short brown lines round it. Exhibited by M. Firmin Lambeau, Brussels.

MANCHESTER AND NORTH OF ENGLAND ORCHID.

At the meeting held at the Coal Exchange, Manchester, on Thursday, May 28th, the members of Committee present were: R. Ashworth, Esq. (in the Chair), Messrs. J. Bamber, J. J. Bolton, J. Cypher, A. G. Ellwood, J. Evans, A. Hanmer, Dr. Hartley, J. Howes, A. J. Keeling, J. Lupton, D. McLeod, C. Parker, W. Shackleton, P. Smith, and H. Arthur (Secretary).

Silver Medals were awarded to Col. J. Rutherford, M.P., Blackburn (gr. Mr. Lupton), and Messrs. Cypher & Sons, Cheltenham, for good miscellaneous groups.

Interesting exhibits were staged by J. Leeman, Esq., Heaton Mersey (gr. Mr. Smith); O. O. Wrigley, Esq., Bury (gr. Mr. Rogers); W. Thompson, Esq., Walton Grange (gr. Mr. Howes); Messrs. A. J. Keeling & Sons, Bradford; Messrs. Charlesworth & Co., Haywards Heath; Mr. W. Shackleton, Highfield, Bradford; Mr. D. McLeod, Chorlton-cum-Hardy, and Mr. J. Evans, Lymm.

FIRST-CLASS CERTIFICATE.

Odontoglossum promerens Our King, a large well-set flower with dark purple markings, from Wm. Thompson, Esq.

AWARDS OF MERIT.

Odontoglossum Hereward and O. Leander (Harryano-crispum × mirum), both from John Leeman, Esq.

Odontoglossum amandum magnificum (Wilckeanum × Pescatorei), and Odontioda Schrœderi, both from Messrs. A. J. Keeling & Sons.

Odontoglossum Edward Thompson, from Wm. Thompson, Esq.

FIRST-CLASS BOTANICAL CERTIFICATE.

Nanodes Medusæ, from Messrs. A. J. Keeling & Sons.

The following Competitions have been arranged for the coming session:

The President's Cup and Prize to Gardener, for Cattleyas, Lælias, &c.

J. J. Bolton's Gold and Silver-gilt Medals, with Prizes to Gardener, for Cypripediums.

Evans' Silver Trophy and Prize to Gardener, for Odontoglossums and their hybrids.

Royal Botanic Society of Manchester's Gold Medal, for Odontiodas, Miltonias, &c.

A. Hanmer's Silver Cup and Prize to Gardener, for most points during the session.

P. Smith's Gold Medal and Prize to Gardener, for most points during the session.

The Sander Prizes to Gardeners, for groups.

Cypher's Gold Medal and Prize to Gardener, for Arrangement.

Charlesworth's Objet d'Art, for New Awards.

The Society's Medals will also be awarded as before.

The Secretary regrets to record the death of R. le Doux, Esq., of West Derby, Liverpool, an old member and exhibitor at the Society's meetings.

VANDA STRIATA.—An interesting species of the V. cristata group, which appears to be very imperfectly known, has been sent to Kew for determination from the collection of Robert R. D. Troup, Esq., The Grove, Wembdon, Bridgwater. It was collected on the way from the Pindari Glacier to Naini Tal, in the North-west Himalaya. The species was originally described in 1867 by Reichenbach (*Xen. Orch.*, ii. p. 137, t. 150), as an interesting plant collected by Falconer in the North-west Himalaya, differing from V. cristata in its smaller flowers and the more obtuse spur of the lip. There is a coloured drawing from Falconer at Kew, but no dried specimen has been found, although from the record of the Kew distribution, where it stands as n. 1069 of the collection, eight specimens were distributed. There is however, a garden specimen, dried in 1874, which is authenticated by Reichenbach, also specimens collected at 3000 feet elevation in Sikkim by the late C. B. Clarke and by R.

Pantling which agree in character. Pantling calls it a small-flowered form of V. cristata, found at elevations of 2000 to 4000 feet, while the larger-flowered V. cristata grows at 5000 feet (*Orch. Sikkim Himal.*, p. 216). The larger-flowered form is figured at t. 287 of the work. There is also a coloured drawing of V. striata by Day (*Orch. Draw.*, xxi. t. 77), made in June, 1877, from a plant obtained from Messrs. Hugh Low & Co. two years earlier. It was named by Reichenbach, and Mr. Day remarks: "I believe it is found near Darjeeling and in Nepal," and added, "there is a quaintness about it that I greatly admire." It may be added that the disc of the lip is less strongly ridged than in V. cristata. R.A.R.

REVIEW OF BOOK.

Die Orchideen: ihre Beschreibung, Kultur und Zuchtung. Handbucher für Orchideenliebhaber, Kultivateure und Botaniker. By Dr. Rudolf Schlechter, Assistant in the Royal Botanical Museum, Dahlem, Berlin. With 12 colour-photographs from nature and over 200 half-tone figures.

ORCHID culture has of late years made great progress in Germany, as elsewhere, and Dr. Schlechter has now compiled a work that will be very useful for the amateur, gardener, and botanist, and whieh is to be published in ten parts, at the price of $2\frac{1}{2}$ marks each. Two parts, containing 176 pages, have now reached us, and it is hoped to complete the work during the autumn. The work opens with an introductory chapter in which the general structure of the family is discussed, after which comes a systematic arrangement of the family, based on the classification of the late Dr. E. Pfitzer, with an account of the various groups and genera, and the principal cultivated species, part of which are dealt with in the first two parts received. Chapter 4 will be devoted to an account of the natural habitats and climatic conditions under which Orchids occur in a wild state, in which the experience gained by Dr. Schlechter during his travels in the tropics will be valuable. The remaining chapters will be devoted to Culture, by Herr A. Malaquist, Herrenhausen; Orchids for cut flowers, with a list of suitable kinds, by Herr Otto Beyrodt; Hybridising and seed raising, by Herr H. Janke; Insect pests and their eradication, by Dr. G. Lindau, and the Construction of Orchid houses, by Herr Otto Beyrodt. The work is well printed on art paper, and the figures are by the familiar half-tone process. The colour-photographs are taken direct from nature by the trichromatic process, those in the first two parts being Odontoglossum grande, Paphiopedilum callosum, Cattleya labiata var. Mossiæ, and Dendrobium Wardianum. The work is published by Paul Parey, 10 and 11, Hedemannstrasse, Berlin.

MANURIAL AID TO ORCHIDS.

WITH the exception of the terrestrial Cymbidiums, Calanthes, Phaius, Peristeria elata, and Zygopetalums, there are few other genera which are benefited by direct application of manures, but from personal experience I am strongly convinced that if the houses, Cattleya and Warm, are damped down with liquid diluted cow manure, about twice a week from April to September, very beneficial effects will be derived. The late afternoon is the best time, and the paths, staging, and earth under the latter should be well damped, taking care, of course, not to allow any manure water to touch the plants themselves.

Cattleyas and their allies, Vanda cœrulea and Phalænopses, seem to delight in manurial aid in this indirect manner, for extraordinary root action is thereby brought about, which in itself testifies to vigorous growth. Besides being practised in my own collection, I know of some others where this method of damping with manure water is carried out, with highly satisfactory results, whilst I believe it is extensively performed in American Orchid establishments.

From personal experience I am convinced that the best results are to be obtained from the employment of fairly fresh cow-manure water, which gives off a large amount of ammonia, which is so beneficial to plant development; guanos and other animal manures not seeming to exert such beneficial effects.

Cool house Orchids do not, however, seem to respond in any way to manurial damping, and I have failed to notice any appreciable difference in plants treated with the Cookson Formula, but for promoting vigorous root action in Warm house Orchids, and Cattleyas in particular, there is undoubtedly no better stimulant.

The experience of other readers would be of interest.

Lyndhurst, Watford. C. ALWYN HARRISON.

ORCHIDS IN SEASON.

A FLOWER of a very beautiful Læliocattleya is sent from the collection of W. Waters Butler, Esq., Southfield, Edgbaston. It was purchased as L.-c. Marguerite (L. purpurata × C. Mossiæ virginalis), and, as Mr. Butler points out, the *Orchid Stud-Book* gives L.-c. Marguerite as a hybrid from C. Warscewiczii and L.-c. Schilleriana, whereas the hybrid from L. purpurata and C. Mossiæ is L.-c. Canhamiana. It is not the first-named, which has rosy sepals and petals, and a slightly three-lobed

lip, and as the parentage is evidently given correctly it may be called L.-c. Canhamiana var. Marguerite. The flower is of excellent shape and size, and the sepals and petals are of the purest white, while the lip is rich purple, with a paler area near the apex, and some deep yellow in the throat.

An inflorescence of Cypripedium philippinense bearing three flowers is sent from the collection of E. Ashworth, Esq., Harefield Hall, Wilmslow. Mr. Ashworth remarks that it is a most charming flower, and that he purchased the plant at the Howick House Sale about twenty years ago, under the name of C. Rœbelenii. It was described by Reichenbach under the latter name in 1883, but is now generally regarded as a form of the earlier C. philippinense. The long, spirally-twisted petals and golden yellow ground-colour of the lip give it a very elegant appearance.

A flower of a hybrid Cattleya with two lips is sent from the collection of C. J. Lucas, Esq., Warnham Court, Horsham. It is one of the C. granulosa hybrids, as shown by the long isthmus of the front lobe, and the deeply cut side lobes. It is probably only an accidental development.

ORCHID NOTES AND NEWS.

TWO meetings of the Royal Horticultural Society will be held at the Royal Horticultural Hall, Vincent Square, Westminster, during July, on the 14th and 28th, when the Orchid Committee will meet at the usual hour, 12 o'clock noon.

The next meeting of the Manchester and North of England Orchid Society will be held in the Coal Exchange, Manchester, on July 16th. The Committee meets at noon, and the exhibits are open to members and the public from 1 to 4 p.m.

DEATH OF MR. GEORGE GORDON, V.M.H.—This distinguished Horticulturist passed away at his residence, Priory Park, Kew, on June 14th, after a short illness, at the age of 72. It was only in November last that he retired from the Editorship of the *Gardeners' Magazine*, a post that he had held since November, 1890, though he continued his association with the paper as advisory Editor. Mr. Gordon commenced his horticultural career at Frogmore. under his father, and then went as journeyman to High Leigh, Hoddesdon, a garden famous for its collection of Orchids among other plants. His subsequent career was chiefly among other phases of horticulture, and has been very fully dealt with by our contemporaries. He was one of the original recipients of the Victoria Medal of Horticulture from the R.H.S., and an active promoter of the gardening charities. His

favourite hobby was photograph7, in which connection he was actively connected with Orchidology, and many of his photographs have appeared in the pages of the *Gardeners' Magazine*.

ORCHID PORTRAITS.

CATTLEYA LABIATA.—*Gard. Mag.*, 1914, p. 449, fig.

CŒLOGYNE BURFORDIENSIS.—*Orch. World*, iv. p. 197, fig.

LÆLIOCATTLEYA FASCINATOR-MOSSIÆ VAR. PURITY.—*G.M.*, 1914, p. 437, fig.

LÆLIOCATTLEYA MEDINA EXCELSIOR.—*G.C.*, 1914, i. pp. 371, 382, fig. 165.

MILTONIA CHARLESWORTHII.—*Orch. World*, iv. p. 198, fig.

MILTONIA LÆLIA SANDER.—*Gard. Mag.*, 1914, p. 438, fig.

MILTONIA VEXILLARIA J. GURNEY FOWLER.—*Gard. Mag.*, 1914, p. 441, fig.; *Gard. Chron.*, 1914, i. pp. 372, 382, fig. 166.

ODONTOGLOSSUM CRISPUM NOBILIUS.—*Journ. Hort.*, 1914, i. p. 571, fig.

ODONTOGLOSSUM CRISPUM PERSIMMON.—*Journ. Hort.*, 1914, i. p. 596, fig

ODONTOGLOSSUM KING ARTHUR.—*Gard. Mag.*, 1914, p. 492, fig.; *Gard. Chron.*, 1914, i. pp. 442, 456, fig. 208.

ODONTOGLOSSUM QUEEN ALEXANDRINA.—*Orch. World*, iv. p. 206, fig.

ONCIDIUM CHEIROPHORUM.—*Journ. Hort.*, 1914, i. p. 575, fig.

PHALÆNOPSIS SCHILLERIANA.—*Orch. World*, iv. p. 205, fig.

VANDA SUAVIS.—*Orch. World*, iv. p. 195, fig.

VANILLA POMPONA.—*Horticulture*, 1914, p. 831, fig.

ANSWERS TO CORRESPONDENTS.

[Orchids are named and questions answered here as far as possible. Correspondents are requested to give the native country or parentage of plants sent. An ADDRESSED *postcard must be sent if a reply by post is desired (abroad, reply postcards should be used). Subjects of special interest will be dealt with in the body of the work]*

F.S.R.—The peculiar character of the flowers of your Odontoglossum crispum is probably constitutional, as it has appeared several times. We should like to see a flower, and to know whether the others of the same variety which give perfect flowers are sub-divisions of the same plant

G.H.—Complete details are given in the *Orchid Stud-Book*, of which you should secure a copy (See page 2 of Wrapper).

W.M.—The flowers are Stanhopea guttulata, Lindl., a Brazilian species.

Received.—P.H., S.P., J.C.B.F., A.A.P., P.W.H.

Photograph received with thanks.—E.A.

CATALOGUE RECEIVED.—We have received the Catalogue of Orchids for 1914 of M. Th. Pauwels, Meirelbeke, Ghent, containing a large selection of species and hybrids with prices.

VOL. XXII. AUGUST, 1914. No. 260.

THE ORCHID REVIEW

Edited by R. ALLEN ROLFE, A.L.S.

CONTENTS:

	PAGE
Amateur's Collection	250
Answers to Correspondents ...	256
Calendar of Operations for August ...	234
Cattleya Warscewiczii Frau Melanie Beyrodt	240
Cypripedium philippinense	253
Eria pilifera	255
Herbaria and their use	228
Masdevallia curtipes	237
Murder of a Plant Collector ...	227
Obituary	238
Right. Hon. Joseph Chamberlain, M.P.	238
Odontonia Charlesworthii	241
Orchid Notes and News	255
Orchid Portraits	256
Orchids at Jarvisbrook, Sussex ...	232
Our Note Book	225
Phaius simulans, Culture of	254
Societies	242
Manchester and North of England Orchid	249
Royal Horticultural	242
Spot on Vanda cœrulea	251
Stanhopea guttulata	239
Vanda cœrulea, Spot on	251

ILLUSTRATIONS.

	PAGE
Cattleya Warscewiczii Frau Melanie Beyrodt	240
Cypripedium philippinense	253
Odontonia Charlesworthii	241
Orchid Nursery at Jarvisbrook, Bird's-eye view	232
Orchids at Enfield, View in Coolhouse	233

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The Orchid Review

VOL. XXII. AUGUST, 1914. No. 260.

OUR NOTE BOOK.

THE recent Shows have afforded some striking illustrations of progress in hybridisation in the Miltonia group, and of the way it is being linked up with Odontoglossum and allied genera. At the Holland House Show a First-class Certificate was given to a very charming hybrid between Miltonia vexillaria Leopoldii and Odontoglossum Rolfeæ, which was exhibited by Messrs. Mansell & Hatcher under the name of Odontonia Cleverleyana, and an Award of Merit to one from Miltonia Bleuana and Odontioda Charlesworthii, exhibited by M. Firmin Lambeau as Vuylstekeara insignis, the latter combining the three genera Miltonia, Odontoglossum, and Cochlioda. At the R.H.S. meeting held a fortnight later another triumph of the hybridist's art appeared, in the shape of a hybrid between Miltonia vexillaria and Odontoglossum Uroskinneri, under the name of Odontonia Charlesworthii, for which Messrs. Charlesworth & Co. were unanimously awarded a First-class Certificate. This brilliant acquisition is illustrated at page 241, and it will be seen how completely the characters of its very distinct parents are combined, though no figure in black and white can do justice to its rich coloration. In some respects the flower may be compared to a much enlarged and glorified edition of the Odontoglossum parent, but the influence of the Miltonia—which was the pollen parent—can be traced all over, particularly in the shape of the lip and column. The seedling has apparently a good constitution, and should develop into a very fine thing when the plant becomes stronger.

Miltonia vexillaria has now been united with such very distinct species as Odontoglossum crispum, O. Edwardii, O. Uroskinneri, and Cochlioda Nœtzliana, and as there are already several secondary hybrids between the two genera, it is obvious that the march of improvement will continue, and when more of the habit and vigorous character of the numerous blotched Odontoglossum hybrids have been introduced, some remarkable developments may be expected. Successes of this kind will only stimulate our

hybridists to make further experiments, and already we have evidence of a number of interesting experiments in progress, though the time has not yet come to speak about them, and there are many disappointments in such work.

The hybrids of Miltonia proper were dealt with in our June issue very thoroughly, and it would be an interesting experiment to unite these with Miltonioda Harwoodii, Odontonia brugensis, and the spotted Odontonia Cleverleyana, with a view to increasing the range of colour variation, which has hitherto been rather limited. There are two or three other spotted Odontonias partly derived from Miltonia vexillaria, all of which would be worth trying, as they could scarcely fail to be showy, and they would probably succeed under the same treatment as the rest of the group. They require a little more heat than the cool Odontoglossums, and this may prove to be one of the difficulties in uniting the two groups, though it is not likely to be insuperable, as a few experiments will probably show the most suitable treatment. At all events any difficulty in raising the seedlings has been overcome.

A suggestion to hold another Show of autumn-blooming Orchids in 1915, on the lines of the one held in November, 1912, was put forward by the chairman of the R.H.S. Orchid Committee at its meeting held on July 14th—it was too late for the present year, as the programme was already arranged—and the idea was favourably received; indeed, surprise was expressed that such a highly successful event was not continued annually. It would entail very little trouble to adapt one of the ordinary meetings—preferably the first November meeting—to this purpose, and we hope the Society will make the necessary arrangements in its next programme. The thing should be done properly, and autumn-blooming Orchids are now so numerous that a special meeting at this season would almost certainly be successful. We shall be glad to have any suggestions from our readers on the subject.

Two addresses are reviewed in close juxtaposition in the last issue of the *Journal of Botany* (pp. 175-177). The first is that of Dr. J. F. Lotsy, read at a meeting of the Linnean Society on February 19th last, "On the Origin of Species by Crossing," which was very fully dealt with in our March issue. The second is by Prof. G. Henslow, read on June 4th, "On Darwin's Alternative Explanation of the Origin of Species without the means of Natural Selection," in which various subjects are discussed and the opinions of different authors are collected. The review concludes with what is termed Darwin's final charge against scientists for their misrepre-

sentations: "Great is the power of steady misrepresentation; but the history of science shows that, fortunately, this power does not long endure." And the reviewer adds: "It has lasted for fifty-five years (1859-1914)."

We do not remember the precise connection of Darwin's remark—and our notes are written far away from all books of reference—neither do we know whether the reviewer regards these addresses as a final and triumphant refutation of Darwin's epoch-making work or whether it is that he cannot see the wood for the trees, but we recall the comment of a —possibly sarcastic—correspondent that there are no species now, everything is a hybrid between its parents. We have also been told that hybridisation introduces no new character; that hybrids are either intermediate or combine the characters of their parents, so that we are still left in doubt as to the origin of the two great original super-parents and their obviously multitudinous characters. The origin and development of Orchids becomes a mere trifling and subordinate detail.

And if "'species' (if the term may be used without begging the question) faithfully reproduce their kind for ever, unless crossing intervene" we are left without a clue as to their "origin" before sexual reproduction took place. Again, if "inheritable variability does not exist," and there is no such thing as inheritance of "acquired" characters, it is not clear *how* "definite variation leads to permanent modification of character." Perhaps, after all, the last word has not been said upon the subject.

MURDER OF A PLANT COLLECTOR.—The last issue of the *Kew Bulletin* gives (p. 192) some details of the murder by natives of Amboina, on December 13th, 1913, of Dr. C. B. Robinson, of the Bureau of Science, Manila, of which a short note appeared at page 37 of our February issue. Dr. Robinson had gone to Amboina in order to collect over the classic ground visited by Rumphius, and to obtain as complete a collection as possible of the species figured and described by the latter, which included a large number of Orchids, whose identity is still uncertain. Mr. E. D. Merrill, who proceeded to Amboina immediately on hearing the melancholy news, has fortunately recovered and taken to Manila the whole of the botanical collection made by Dr. Robinson, and intends to distribute them in two sets, one of which will consist of the plants that can be definitely connected with the species figured and described by Rumphius, so that the result of the expedition will not be wholly lost. The true cause of the murder seems somewhat obscure, for the body was thrown into the sea without anything having been stolen, and it seems possible that Dr. Robinson was the victim of superstitious fear caused among the natives by his sudden and

unexplained appearance in the lonely spot to which he had walked unaccompanied. Dr. Robinson is said to have been very popular with the natives and with their children, and frequently made journeys alone. His death caused general mourning among the population of Amboina. Dr. Robinson was a British subject, a citizen of Nova Scotia, and was for two years in residence at Christ's College, Cambridge. His untimely end is a great loss to botanical science.

HERBARIA AND THEIR USE.

THE opening of the Reichenbachian Herbarium, and the assurance of Prof. Zahlbruckner (pp. 206, 207) that its contents are undamaged after their long incarceration, is a matter of the greatest interest to Orchidists, and serves to call attention to the use of Herbaria generally. A Herbarium is a collection of samples of the world's Flora, and its value depends entirely upon the completeness of its contents and the accuracy with which they are named and classified. An explorer may visit some unknown country and bring home a collection of dried specimens to illustrate the plants that he met with during his travels. They will be more or less localised, and may be accompanied by sketches, and notes of colour, station or altititude, in which case their value is much increased. In course of time they will be named by some botanist, and technical descriptions published, so that the plants may be identified by those who subsequently visit the same country or may meet with them elsewhere. The specimens then become the types of these descriptions and the ultimate standards of comparison in all cases of doubt or confusion in the future. But if these descriptions are incomplete, or unaccompanied by dimensions or figures, or if any of the technical terms are used in some unusual sense, it may not be possible to identify the plants from the descriptions alone, hence the importance of the types, or of fully authenticated specimens of the same species.

This is precisely what has happened in the case of the Reichenbachian Herbarium. Numerous collections of dried specimens were made by Orchid collectors, as Wagener, Schlim, Roezl, Wallis, Lehmann, and others too numerous to mention, and the specimens were forwarded to Reichenbach, who named them, and published characteristically imperfect descriptions, from which it is often impossible to identify the plants. This would not have mattered so much if the specimens had been accessible in the ordinary way, but it is notorious that they were not, and the difficulty, though not felt so much during the eccentric author's lifetime, has been greatly intensified by the extraordinary provisions of his Will, which has

greatly handicapped the systematic study of Orchids for a generation, and has probably created a good deal of unnecessary synonymy, simply because the world could not stand still for a quarter of a century. Of this, however, it is too soon to speak. We must "Wait and see."

There is another difficulty in connection with the identification of plants from descriptions alone that is not always realised, namely, that of the imperfect condition of the materials from which such descriptions were prepared, and this may arise from several causes. A single specimen cannot indicate the range of variation of a species, and although this may not matter much when average specimens are collected, it creates a serious difficulty when descriptions are prepared from unduly luxuriant or starved examples, or in the case of an Orchid flowering for the first time after being imported, and sometimes not normally developed. Species have been described from such materials—there may be such in the Reichenbachian Herbarium—though such errors are easily corrected from subsequent materials. Species carefully described from incomplete but normally developed specimens generally tell their own story, but if the materials are in any way abnormal or if essential characters are omitted, and the native country is unknown, one can easily recognise how difficult or impossible it may be to name closely allied species from the description alone, and how essential it is to preserve specimens for future reference.

Similar illustrations indicate the value of type specimens. Strictly speaking, a type specimen is the actual material from which a species is described, however incomplete or abnormal it may be, and is always the ultimate court of appeal in case of doubt, though there may be duplicate specimens of almost equal value. For example, a collector may gather several specimens from the same plant, or from different plants growing together that he considers identical, and distribute these to different establishments under a common number. One of these will be named and described, and thus become the actual type specimen. But the number will be cited, enabling the other specimens to be named, and these, often called co-types, will be of practically equal value with the original for purposes of identification. Some of Schlim's specimens were distributed in this way, also the earlier ones of Lehmann, but in the latter case the value of the co-types is reduced by Lehmann's unfortunate practice of adding to any given number specimens gathered at a later date, and even in a different locality, that he thought were identical, and in this way he has sometimes added specimens of a distinct and allied species, thus destroying the value of the system of collectors' field numbers. Such an extension of the system should not be made.

There are other kinds of co-types. A plant from which a type specimen was gathered would be called the type plant, and all specimens afterwards

dried from it would be equally authentic with the original. There are various specimens at Kew that were dried from the very plant that produced Reichenbach's original type. Another example is supplied by Mr. John Day's collection of Orchid paintings, now at Kew. In the case of an unknown plant Mr. Day would make a coloured sketch, and then forward materials to Reichenbach, adding the name to the drawing when a reply was received. A number of such plants proved new and were described, thus giving to the drawing the importance of the actual type.

The value of a Herbarium depends largely upon the number of type and authentically named specimens it contains, hence that of the Reichenbachian Herbarium should be very great, quite apart from any sentimental value it may possess. It derives a special importance from the fact that after Dr. Lindley's death practically all the novelties obtained by Orchid collectors, both in the shape of dried specimens and of those that flowered in European gardens during the period of great activity before hybrids assumed such importance, were named by Reichenbach. The more showy species were figured in the *Botanical Magazine* and other horticultural works, but a great many have never been figured, and some of them were never generally diffused in cultivation, or were quickly lost, the result being that a good many are only known from the often imperfect descriptions. It is here that the closing of the Reichenbachian Herbarium has been chiefly felt. Some of the species have been re-introduced, and have been identified, with more or less uncertainty, from descriptions, others have probably been described under new names, and some have been dried and still await the opportunity to compare them with the type specimens, and this period of waiting has not unnaturally been accompanied by a good deal of impatience on the part of growers, who have sometimes been unable to get names for their plants.

The whole of Reichenbach's types, however, are not contained in his Herbarium, for some of his species were based on specimens in the Lindley Herbarium, and others in the General Herbarium at Kew (and doubtless elsewhere), though in some cases Reichenbach did not write his names upon the sheets. How far these species are represented in the Reichenbachian Herbarium remains to be seen, and, of course, he may have made sketches of them.

Type specimens are of the most varied description, and anything may serve. Any specimen that is sent to an establishment for determination may be described as a new species, in which case it becomes the type of that description, whatever the subsequent history of the plant may be. It would naturally be dried and preserved, and if the species afterwards proved identical with some older one it would still be the type of the supposed novelty. A few flowers pressed between the leaves of some traveller's note-

book may be the basis of a new species, and there are many types which have a very interesting history.

When Osbeck, on his return from China, over a century and a-half ago, landed for a short time on the coast of Western Java, and brought away an inflorescence of a beautiful white Orchid, which he subsequently dried and sent to Linnæus, he probably did not realise that it would stand for all time as the type specimen of one of the most beautiful Orchids we possess. Linnæus called it Epidendrum amabile—the few epiphytic Orchids then known were all called Epidendrum, but much has been learnt since then. Later on Swartz saw that some division of Epidendrum was necessary, and created the genus Cymbidium, to which Osbeck's plant was referred, as Cymbidium amabile. Blume next saw that the plant was not a Cymbidium, and called it Phalænopsis amabilis, owing to a fancied resemblance to a moth. Under this name it appears in Lindley's *Genera and Species of Orchidaceous Plants*, the species then not being in cultivation. When Cuming afterwards went to the Philippines he sent living specimens of a beautiful white Phalænopsis that Lindley thought was P. amabilis, Blume, and so figured it in the *Botanical Register*, but when subsequently the true Javan plant was imported alive Lindley, instead of seeing his mistake, described it as a new species, under the name of P. grandiflora, and actually figured a flower of each to show the difference between them. It was left to Reichenbach to point out the error, but in such a way that the erroneous names were retained for garden use, and before the correct names were fully adopted the Javan plant, by another irony of fate, was imported in quantity under the name of P. Rimestadiana, under which it is still largely grown.

In some cases the type specimens were not kept, or have been subsequently lost. Even Lindley, in some cases, made a drawing on his Herbarium sheet and did not keep the specimen, so that the drawing becomes the only type. But when neither specimen nor drawing can be found it may be difficult or impossible to identify an imperfectly described plant, and there are such cases among Orchids, all of which shows the importance of an exact standard of reference.

We have spoken of a Herbarium in the limited sense of a collection of dried plants of any definite kind, not in the broader sense of a large establishment devoted to every phase of botanical work, with its necessary adjunct of an extensive library and collection of drawings, as the great national establishment at Kew. This indeed contains many different Herbaria, as the Lindley Orchid Herbarium, the Watson and the Borrer Herbaria of British plants, the Wallichian Herbarium of Indian plants, &c., all of which retain their distinct names because not incorporated in the general collection.

ORCHIDS AT JARVISBROOK, SUSSEX.

THE annexed illustration gives what may be termed a bird's-eye view of Messrs. Stuart Low & Co.'s new establishment at Jarvisbrook, Sussex, of which an account was given at pp. 202-206 of our last issue. It shows the position and some of the surroundings of the blocks of houses described last month, but nothing further is possible, for all the details are necessarily on a greatly reduced scale. It should also be explained that all the houses shown are not devoted to Orchids, though our account was necessarily limited to those in which these plants are grown. There are numerous Carnation houses, while the eleven acres of ground are devoted

Fig. 25. BIRD'S-EYE VIEW OF MESSRS. STUART LOW & CO.'S JARVISBROOK NURSERY.

to roses and other nursery stock of which Messrs. Stuart Low & Co. make a speciality. The grounds are not yet fully utilised, and it may be interesting to add that Orchids are not entirely new to the locality, for on looking round we quickly detected examples of the native Listera ovata and Orchis maculata, which seemed quite at home among their surroundings. It was also interesting to see the pumping machinery and large storage tank which supplies the nursery with water, these and other details being of quite modern and up-to-date character. The Orchid houses, as already explained, were built to replace those at Bush Hill Park, Enfield, which have now been dismantled, and the illustration on the opposite page forms

an interesting memento of the old establishment. It represents the Entrance Corridor to the Cool Orchid house, and forms an interesting little picture, besides illustrating well the decorative value of these beautiful plants. A number of Odontoglossum crispum and O. Pescatorei will readily be recognised, together with Dendrobium thyrsiflorum and an

Fig. 26. ENTRANCE CORRIDOR TO COOL ORCHID HOUSES AT BUSH HILL PARK, ENFIELD.

Oncidium, with the usual accompaniment of decorative foliage plants. It may be added that a short account of the Enfield establishment of Messrs. Hugh Low & Co. was given in 1898 (*O.R.*, vi. pp. 294, 295), and a more detailed one nine years later (xv. pp. 139-144). For the loan of the blocks we are indebted to Messrs. Stuart Low & Co.

CALENDAR OF OPERATIONS FOR AUGUST.

By T. W. BRISCOE, Late Foreman of Messrs. Veitch's Hybridising Department.

DURING the present month the general growing conditions should be maintained in each division, and to achieve this object it will be necessary to devote considerable time to the ventilation, shading, judicious watering, and damping down in every house. Success will largely depend upon how these details are carried out, and cleanliness is equally important. At this period of the year some plants will have completed their season's growth, while others will be approaching that stage. Where possible they should be placed in another house, where the atmosphere is slightly drier, and the shading is not quite so heavy, but care must be taken that they do not suffer from drought. If this idea cannot be carried out they may be arranged in a batch and treated accordingly.

CALANTHES.—From now until the leaves begin to decay the Calanthes should be afforded copious waterings, and if space has been left for top-dressing, the present is a good time to do it. Some growers give an occasional watering with weak liquid cow manure and soot, but this should not be permitted until root action is vigorous, and the new pseudobulb is formed. The leaves of well-grown Calanthes take up a lot of space, but they must be allowed plenty of room to develop.

CYMBIDIUMS that were repotted early in the year will take water more frequently, and any that need fresh rooting material may be given attention. Among the latter will be C. Lowianum, C. eburneum, and others that were not disturbed earlier in the year.

CATTLEYAS AND ALLIES.—Cattleya labiata is making up some fine pseudobulbs, and water must be given generously till the spikes are removed. C. Gaskelliana and some of the long-bulbed sections will be flowering. The various forms of Lælia anceps are well-rooted, and a few of the early plants will be developing their flower scapes in conjunction with the new growth. The shading should be removed earlier in the day, and the plants ought not to become dry at the base.

Many of the small Bulbophyllums, Cirrhopetalums, and the other miniature botanical Orchids can be either top-dressed or repotted as they pass out of flower. They are usually suspended from the roof, where the atmosphere is warm and moist, and at no time ought they to become excessively dry at the root.

DENDROBIUMS belonging to the nobile group will begin to complete their season's growth, and when the terminal leaf appears the resting period can be commenced by giving the plants a lighter and more airy position, but a fair quantity of water will still be necessary.

ODONTOGLOSSUM CRISPUM AND ALLIES.—Towards the end of the month a start should be made to repot any Odontoglossums that require it. As many as possible should be repotted at this season, then the plants have a chance of re-establishing themselves before the winter months. Large pots should not be used, a point that ought to be borne in mind when dealing with most Orchids. A variety of soils have been recommended at different periods, but as a general rule that suggested for Masdevallias and Miltonias will suit the Colombian Odontoglossums and their hybrids. I have heard that in some collections osmunda fibre is not so satisfactory as a mixture of peat and sphagnum, and it would be interesting to hear readers' views on this important subject. The newly-potted plants should be staged at one end of the house, then their individual requirements can be studied, especially in regard to watering and shading. Although these Odontoglossums are usually well grown, there are instances where they do not thrive and produce that fine healthy appearance so dear to the heart of every Orchidist. In many cases the cause is too much water at the root, and keeping the atmosphere always in a saturated condition. Nothing is more conducive to healthy growth than allowing the atmosphere to become comparatively dry for a couple of hours each day.

DISAS.—We rarely find these distinct and handsome Orchids in a thriving condition, no doubt partly owing to the time when they are repotted, and to a close, stuffy atmosphere. The repotting should be done a week or so after the flower spikes are removed, and about every second year. The first to need attention is D. Luna and some of the other hybrids, while the brilliant D. grandiflora can wait a few weeks later. A suitable rooting medium is made up of the best fibrous loam, sphagnum moss, and a little peat, with a fair sprinkling of silver sand or crushed crocks. For well-rooted examples pots at least two sizes larger will be necessary, and very little disturbance will be needed. With the last layer of soil a few living heads of sphagnum can be incorporated, which will help to keep the roots in a moist condition. At no time must Disas suffer from drought, because they are practically perpetual growers, and have no decided resting season. The coolest end of the Odontoglossum house should be chosen, and immediately below a ventilator, for fresh air is a most important factor in Disa culture. This should be open more or less throughout the year, both day and night. Where large specimens exist and the growths have become small it will be advisable to divide them into several pieces, taking care that each portion has a tuber attached. If potted in rather small receptacles they will soon become established, when a larger pot may be given. The pots should be plunged in moss or any moisture holding material, and when the house is vaporised the Disas ought to be removed to another structure until the fumes have escaped, or the leaves will be

injured. Thrip is sometimes troublesome, but an occasional spraying with a good liquid insecticide will hold them in check, or the plants may be dipped in a similar solution.

CŒLOGYNE PANDURATA.—This Cœlogyne is not a difficult plant to grow if it is provided with a hot moist atmosphere during its period of activity, and a few degrees less warmth when at rest. The pseudobulbs are produced at intervals on a stout rhizome, and for this reason a long teak-wood basket proves the best receptacle. The general compost should be used, and when necessary, new soil can be given a few weeks after the spikes are removed, or directly root action is evident.

PERISTERIA ELATA is a strong growing plant which will now be throwing up its flower spikes. Where they are in a pot-bound condition, an application of weak liquid cow manure will be of considerable benefit, but it must be discontinued when the first flower opens. Some good fibrous loam should be added to the usual fibres when any repotting takes place.

ONCIDIUM BICALLOSUM is a fine Orchid, and may be repotted at this season if the compost is decayed or a larger receptacle is required. A loose or retentive rooting medium is not conducive to the production of strong spikes with flowers of lasting quality, so osmunda and polypodium fibre should be used in equal parts, with just a sprinkling of sphagnum moss. Make the soil fairly firm and afford water sparingly till the roots are well away. This Oncidium may be grown either in the Cattleya or Intermediate house.

RENANTHERA IMSCHOOTIANA.—This is one of the many Orchids that is often represented in collections by several examples, and rightly so, for its scapes of bright vermilion flowers are always admired. As the flowering period has now passed, fresh roots will be pushing out from the stems, and the compost should be renewed if at all decayed. This should consist of osmunda fibre, good quality peat, and sphagnum moss in equal parts, while the last layer should be fresh sphagnum, free from weeds and other rubbish. Where the plants have become leggy, and the stems leafless, the top portion may be severed immediately below new roots and potted up, but for a few weeks a little extra shade will be necessary. The lower half may "break," and form two or more growths, if kept slightly on the dry side. R. Imschootiana has been tried in several houses, but the best results have been obtained at the cool end of the Cattleya or Intermediate house. A position near the glass is essential.

MILTONIA VEXILLARIA AND ITS VARIETIES.—These beautiful Orchids may now be overhauled, and given new compost where such is necessary. A suitable mixture consists of osmunda or polypodium fibre, good quality peat, and sphagnum moss in equal parts, while some growers add a sprinkling of partly-decayed oak or beech leaves with beneficial results.

Hard potting is not advised, and the other extreme must also be avoided. Small examples may be moved on without much disturbance, but larger specimens which show signs of deteriorating can be pulled into several pieces, cutting away any dead roots and superfluous back pseudobulbs, and removing all the old soil. Each lead or growing point should have two or three old bulbs behind it, and if each piece is given a separate receptacle they will soon make nice plants, full of vigour, and be capable of producing some strong spikes in due season. They should all be given a position in the Intermediate house, and water must be applied with caution for a few weeks until the roots are seen creeping over the edge of the pot, when the supply can be slightly increased. Shade from direct sunlight will be necessary, and the surroundings should be kept moist by syringing between the pots, and lightly spraying overhead whenever the weather is hot.

MILTONIA HYBRIDS.—The oldest and most common hybrid belonging to this section is M. Bleuana, which may be grown in the same way as M. vexillaria. Many other hybrids have appeared of late years, and probably the flowering period will be somewhat irregular. In such cases they must be repotted when the occasion arises, irrespective of season or orthodox methods.

ONCIDIODA COOKSONIÆ.—This bigeneric hybrid is sure to become popular, and most noted collections contain at least one of this interesting genus. There is nothing difficult in connection with their cultivation, provided the compost is kept in a sweet condition, and the plants are not exposed to a lot of sunshine. The Intermediate house should be chosen for this Oncidioda, especially during the winter months, and any repotting can be done when the new growth is two inches or so in length.

NEOBENTHAMIA GRACILIS.—If this graceful Orchid has produced any top growths they may be removed and placed in pots, if it is desired to increase the stock. Many of the Epidendrums can also be increased in this way. With stock plants basal growth should be encouraged and not the top shoots, unless for propagating purposes.

MASDEVALLIA CURTIPES.—A small Brazilian Masdevallia has flowered with Messrs. Sander & Sons, St. Albans, which proves on comparison to be Masdevallia curtipes, Rodr. *(Gen. et Sp. Orch. nov.*, ii. p. 95), an ally of M. infracta, Lindl., differing in having very short scapes, about one-third as long as the leaves. When figured a few years ago from M. Barbosa Rodrigues' original drawing (*Woolw. Monogr. Masdev.* p. 109, t. 42), it was said not to be in cultivation. The species was originally discovered by M. Barbosa Rodrigues in the damp forests of Rodeio, a few miles north of Rio de Janeiro, in 1879.—R.A.R.

OBITUARY.

THE RIGHT HON. JOSEPH CHAMBERLAIN, M.P.—A distinguished Orchidist passed away at his London residence, 40, Prince's Gardens, on Thursday, July 2nd, in the person of the Right Hon. Joseph Chamberlain, M.P., within six days of completing his 78th year. To the public Mr. Chamberlain was best known as a strenuous politician, and his public career and distinguished service to the State and to his native town of Birmingham have been dealt with very fully in the columns of the press. But even here his love of Orchids has been prominently alluded to. For many years, we have been told, Mr. Chamberlain was never seen in public without an Orchid in his buttonhole, grown in his own Orchid house at Highbury, Moor Green, Birmingham, and when in London two buttonholes were sent up for his use every day. This habit of Mr. Chamberlain was one of the joys of the cartoonist, and although some of his creations would scarcely stand the scrutiny of a Reichenbach, they have doubtless helped to popularise a flower with which Mr. Chamberlain's name will always be inseparably connected.

Mr. Chamberlain was a great lover of Orchids, and his collection at Highbury, Birmingham, was long one of the most famous in the Midlands. As early as 1881 Reichenbach alluded to him as a great amateur of Orchids, and named the handsome Cattleya Chamberlainiana, a hybrid between C. Leopoldii and C. Dowiana, in his honour. An account of the Highbury collection was given at pp. 107-110 of our first volume, when it was remarked that thirteen houses were devoted to Orchids, these, with some others, and a lofty conservatory, being connected by a Corridor, and the whole so arranged that any of them could be visited without going into the open air, and the principal ones fitted with electric light. (Illustrations were also given in our third volume of the Cattleya House at Highbury (p. 233, fig. 9), and the Show House at Highbury (p. 241, fig. 10), and a later account of the collection will be found at pp. 331-333 of our sixth volume).

Mr. Chamberlain was a collector of choice varieties of the more showy species, and had an intimate knowledge of the history of individual specimens and of the details of their culture. Cattleyas and Lælias, Dendrobiums, Odontoglossums, Phalænopses, and Masdevallias were among his favourites, and the two latter had houses to themselves, and were in thriving condition. Cypripediums, however, found little favour, and only a few of the brighter species were grown. As hybrids increased in popularity a good many interesting things were added and some raised in the collection, among those which we recall being Masdevallia Shuttryana var. Chamberlainii, Læliocattleya highburiensis, and Dendrobium Andromeda in 1896;

Dendrobium Burberryanum in 1897; the beautiful Sophrocattleya Chamberlainii in 1898; Brassocattleya Mariæ and Dendrobium Achilles in 1902; and Dendrobium Ariel and Brassolælia Rolfei in 1903—the latter named by Mr. Chamberlain in compliment to the Editor of this journal "and as a tribute to what he is doing for Orchidology." Mr. Chamberlain was always a warm friend of the *Orchid Review*, and many interesting things have been forwarded from his collection, the last that we remember being two hybrid Læliocattleyas recorded at pp. 347, 348 of our eighteenth volume. He was also a contributor, and his articles on the Nomenclature of Hybrids at pp. 133-135 and 359 of our fourth volume show that he was a close observer, and had a lively appreciation of the necessities of the case.

Mr. Chamberlain's love of Orchids was deep and enduring. A bouquet of Transvaal Orchids was one of the most appreciated of many presentations to him on his visit to South Africa, and living plants of Ansellia gigantea was one of the souvenirs brought home on his return. His hobby was a solace from the cares of public life, and remained with him to the end. His name is indissolubly connected with Orchidology, for besides plants mentioned above we recall Lælia anceps Chamberlainiana and Cypripedium Chamberlainianum as having been named in his honour, though he rather regretted the latter on the ground that he was not much interested in Cypripediums. It may be added that Mr. Chamberlain was for many years, and until his death, a Vice-President of the Royal Horticultural Society.

STANHOPEA GUTTULATA.—An interesting Stanhopea, which was bought from the collection of the late Mrs. Brandt, of Zurich, has been sent for determination by Herr Siebert, Director of the Palmengarten, Frankfurt. It proves to be S. guttulata, Lindl., one of the lesser known species and an ally of S. oculata. It was described by Lindley in 1843 (*Bot. Reg.*, xxix. Misc. p. 75) from a single flower received from the collection of J. H. Wanklyn, Esq., of Crampwell House, but nothing was stated about its origin. A few years later it was figured (*Gard. Chron.*, 1848, p. 439), but nothing further was added to its history. In 1852, however, another figure appeared (*Lem. Jard. Fleur.*, iii. t. 309), from a plant said to have been imported from Brazil by M. de Jonghe. It has also another name, for in 1846 it was figured as S. gravolens (*Ann. de Gand*, ii. t. 54), but it is not Lindley's plant of that name. The elongated hypochil of the lip indicates a near affinity with the Mexican S. oculata, Lindl., but it is readily distinguished by its darker colour, and by the flower being heavily spotted with dark purple brown throughout. It is rarely met with in cultivation. There are several other imperfectly known species of this remarkable genus.—R.A.R.

C. WARSCEWICZII FRAU MELANIE BEYRODT.

THIS very distinct and beautiful variety of Cattleya Warscewiczii appeared in the establishment of Herr Otto Beyrodt, Marienfelde, Berlin, and received a First-class Certificate from the R.H.S. in July, 1904, when exhibited at the Holland House Show. The sepals and petals are pure white, also the lower part of the lip, but the front lobe is bright

Fig. 27. CATTLEYA WARSCEWICZII FRAU MELANIE BEYRODT.

purple-crimson, this colour extending to the apex of the side lobes as a few irregular blotches, leaving a clear white margin right round the lip. The usual eye-like blotches in the throat are also nearly white. It has since been propagated, and the plant here figured is one in the establishment of Messrs. Stuart Low & Co., Jarvisbrook, Sussex.

ODONTONIA CHARLESWORTHII.

A VERY brilliant hybrid was exhibited by Messrs. Charlesworth & Co., Haywards Heath, at the R.H.S. meeting held on July 14th, under the name of Odontonia Charlesworthii, which is here illustrated from a

Fig. 28. ODONTONIA CHARLESWORTHII.

photograph kindly sent by the exhibitors. It was obtained by crossing Odontoglossum Uroskinneri with the pollen of Miltonia vexillaria, the result being a hybrid of good size and shape and of great brilliancy of colouring. The plant is most like the Odontoglossum parent in general

character, but shows some of the glaucous tint of the Miltonia, and the scape is erect and at present four-flowered. The flowers are well expanded, and the broad lip and short column recall the Miltonia parent, but they are of thicker substance; generally they may be described as intermediate. Their shape and markings are well shown in the figure. The colour of the sepals and petals may be described as red-purple, with a little of the greenish white ground colour of the Odontoglossum parent remaining. The limb of the ample lip is brilliant rose-purple, with a zone of much darker colour round the yellow crest, the margin of the side lobes being whitish. It has obviously not yet reached its full development, and Messrs. Charlesworth must be congratulated on their brilliant acquisition, which was unanimously awarded a First-class Certificate.

SOCIETIES.

ROYAL HORTICULTURAL.

THE Great Summer Show of the Royal Horticultural Society was held at Holland House, Kensington, on June 30th and two following days, and owing to the lateness of the date we were only able to give an account of the Certificated Orchids and the Official List of Awards in our July issue. We now add details of the different groups. The weather was remarkably bright and hot, causing considerable discomfort in the tents, but the Orchids suffered less than many other subjects, and made a magnificent display. There was a large attendance, and among the early visitors were Queen Alexandra and the Dowager Empress Marie of Russia.

Orchid Committee present: Sir Harry J. Veitch (in the Chair), Messrs. J. O'Brien (hon. sec.), S. W. Flory, W. H. Hatcher, F. Peeters, A. Dye, J. E. Shill, J. Cypher, W. Cobb, R. G. Thwaites, A. McBean, H. G. Alexander, Stuart H. Low, Sir Jeremiah Colman, Bart., E. Ashworth, G. F. Moore, W. P. Bound, R. A. Rolfe, Gurney Wilson, R. Brooman White, W. H. White, F. Sander, W. Bolton, J. Wilson Potter, F. J. Hanbury, and Clive Cookson.

Sir Jeremiah Colman, Bart., Gatton Park (gr. Mr. Collier), staged a magnificent group, containing well-grown examples of Cattleya Warscewiczii, Warneri, Gaskelliana, and Murrayi, some fine Lælio-cattleyas, in which L.-c. Canhamiana alba and L.-c. Phœbe var. Colmaniæ were conspicuous, with a hybrid from L.-c. Phœbe × L. tenebrosa, having yellow flowers with purple veining on the lip, some brilliant Odontioda Bradshawiæ, Charlesworthii and Papilio, the latter in two quite diverse forms, well-grown Miltonia vexillaria alba, Cobbiana, and others, M. Bleuana with nine spikes, some good Odontoglossum crispum, &c., the higher part being made up of O. Thompsonianum and other O.

Edwardii hybrids, Epidendrum Boundii and O'Brienianum, Oncidium pulvinatum, Thunia Marshalliana, &c. We also noted the brilliant Anguloa Cliftonii, Cirrhopetalum pulchrum, a nice little cluster of Cochlioda Nœtzliana, Nanodes Medusæ, Gongora quinquenervis, Aërides odoratum album, the blue Dendrobium Victoria-Reginæ, Masdevallia calura, the rare Chondrorhyncha Lendyana, Pescatorea cerina, Physosiphon Loddigesii, Brassia longissima, Cypripedium callosum Sanderæ, and other interesting things, the whole being well-grown and very beautifully arranged with light foliage plants.

Lt.-Col. Sir George L. Holford, K.C.V.O., Westonbirt (gr. Mr. Alexander), staged a fine group of beautifully-grown specimens, particularly noteworthy being about thirty well-bloomed Cattleya Warscewiczii, including the pure white C. W. alba Firmin Lambeau, four good C. Dupreana, C. Herode, the brilliant Læliocattleya Lustre, L.-c. Corncrake (L. Gwennie × C. Mossiæ Reineckeana), Brassocattleya Euterpe and Hyeæ, four plants of the brilliant Sophrocatlælia læta, Anguloa Cliftonii, Aërides odoratum, Vanda teres, some good Miltonia vexillaria and Odontoglossums, with Renanthera Imschootiana, Thunia Marshalliana and others at the back. Each specimen stood out distinctly on a background of green, and formed a most attractive display.

W. Waters Butler, Esq., Southfield, Edgbaston (gr. Mr. Jones), sent a beautiful example of Cattleya Clymene (Warscewiczii × Rex) with a five-flowered spike, and the fine C. Warscewiczii Southfield var.

J. Gurney Fowler, Esq., Brackenhurst, Pembury (gr. Mr. Davis), sent a good specimen of Læliocattleya Canhamiana alba.

H. Dundee Hooper, Esq., Ardvar, Torquay, sent a good plant of Odontoglossum coronarium, bearing a fine spike of flowers.

Messrs. Sander & Sons, St. Albans, staged a magnificent group, which was elegantly arranged with a central bank and two others at each side, the latter consisting largely of masses of the handsome Cattleya Warscewiczii Sanderiana, Læliocattleya Canhamiana, and others. The centre consisted of an elevated stand of Miltonia vexillaria, with masses of Dendrobium Sanderæ and D. Dearei, beneath, while in front and in the lower parts of the group was a brilliant series of showy and interesting things, especially noteworthy being a set of home-raised Miltonias and Odontoglossums, the delicately-coloured Aërides Houlletianum Sanderæ, with two racemes, Dendrobium regium, Læliocattleya brugensis (Martinetii × luminosa), a very richly-coloured hybrid, L.-c. Gottoiana Imperator, a series of Odontioda Bradshawiæ, rosefieldiensis and Charlesworthii, the pretty white and green Ornithocephalus grandiflorus, Bulbophyllum Lobbii, Anguloa Cliftonii, Ruckeri, and Clowesii, a brilliant lot of Cattleya Mossiæ, and others, among which C. M.

Reineckeana Enchantress was particularly charming, Grammangis Ellisii, Odontonia St.-Alban, the graceful Uropedium Lindenii, Odontoglossum Williamsianum, a very dark green Liparis, and a lot of interesting botanical things too numerous to mention.

Messrs. Flory & Black, Orchid Nursery, Slough, staged a particularly fine and effective group of well-grown plants, the numerous Læliocattleyas including Canhamiana, Aphrodite, Violetta, Rubens, Medina, callistoglossa, and Gladiator, making a very brilliant display. L.-c. Sunset (L.-c. Pallas × C. Schrœderæ), a charming pink hybrid, with a very large orange-coloured throat to the lip, surrounded by a whitish zone, L.-c. Constance (C. Mossiæ × L.-c. bletchleyensis), and an excellent L.-c. Canhamiana alba with two spikes of four flowers each were also noteworthy. On either side of the central bank was arranged clumps of about twenty finely-grown plants of Disa Luna—the best spike bearing as many as eleven flowers—forming an imposing effect. We also noted the brilliant D. grandiflora, a few Cattleya Mossiæ and vars. Wageneri and Reineckeana, Odontioda Bradshawiæ, Zephyr, and Wilsonii, and a clump of Anœctochili, including several Ceylon species—a brilliant and artistically arranged group.

Messrs. Stuart Low & Co., Jarvisbrook, Sussex, staged a large and excellent group, to which two raised stands of Phalænopsis amabilis and Renanthera Imschootiana intermixed gave an air of distinction. At the back were some fine examples of Dendrobium Dalhousieanum and Dearei, Cyrtopodium punctatum, Vanda teres, Oncidium serratum, sarcodes, and others, while the body of the group was made up of a brilliant lot of Cattleya Warscewiczii, C. Mossiæ, C. M. Wageneri, Læliocattleya Canhamiana, Aphrodite, and Martinetii, a batch of the charming Oncidium pulchellum, some fine Odontoglossums and Odontiodas, Cypripedium Goweri magnificum, Broughtonia sanguinea, Masdevallia muscosa, Cryptochilus sanguineus, the charming little Promenæa xanthina, and various other interesting botanical species.

Messrs. Mansell & Hatcher, Rawdon, E. Yorks, staged a brilliant group, in which fine examples of Læliocattleya Martinetii, Canhamiana, and Aphrodite, with many brilliant Cattleya Mossiæ, Warscewiczii, and Mendelii were a leading feature. C. Enchantress (intermedia alba × chocoensis alba) is a pleasing white hybrid. There were some good Phalænopsis amabilis in the centre, and a fine example of Aërides odoratum with eight spikes, other noteworthy things being good specimens of Lycaste Deppei and aromatica, the graceful Dendrochilum filiforme, Sarcopodium acuminatum, Trichopilia Backhouseana, Brassavola fragrans, Oncidium pulchellum, some good Odontoglossums, Epidendrum aromaticum, some good Miltonia vexillaria, M. Sanderæ var. Bantingiana (St.-Andre × vexillaria G. D. Owen), a pretty rosy form with a crimson radiating blotch

on the lip, a batch of seedling M. Bleuana producing their first flowers, Promenæa xanthina, Cryptochilus sanguineus, Odontioda Charlesworthii, and Cupid, Anguloa uniflora, Pleurothallis saurocephala, and a fine batch of the Anœctochilus group, including A. Roxburghii, Dossinia marmorata, Macodes Petola, Goodyera pubescens, and others.

Messrs. Charlesworth & Co., Haywards Heath, staged a small group of choice Orchids, every plant a well-grown specimen, and we noted excellent examples of Oncidioda Charlesworthii with four large panicles of rosy flowers, Epidendrum vitellinum with ten spikes, a strong Odontoglossum spectabile with three spikes of 18, 17, and 16 flowers, O. armainvillierense xanthotes, O. Aiglon majesticum with enormous, heavily blotched flowers, O. eximium, Miltonia vexillaria Queen Alexandra, Dendrobium Dearei, and M. Isabel-Sander (Hyeana × Roezlii), Aërides odoratum album, Oncidium macranthum, Odontioda Charlesworthii, Madeline, and Lutetia, Brassavola Digbyana, Læliocattleya Canhamiana alba, L.-c. Cowanii Yellow Prince, yellow with a ruby lip, L.-c. Gottoiana grandis, &c. The group formed an excellent example of good culture and was much admired.

Messrs. E. H. Davidson & Co., Twyford, Berks, showed a fine group, the centre consisting of some good Cattleya Mendelii, C. Warscewiczii, C. W. Frau Melanie Beyrodt, and others, while at the ends were stands of Renanthera Imschootiana and Phalænopsis amabilis. We noted some good Læliocattleya bletchleyensis, Cattleya Harrisoniana, C. Mossiæ Wageneri, a dark-coloured hybrid between C. Vulcan and C. Dowiana aurea, Odontioda Thwaitesii Purple Emperor, a richly-coloured form, Odontoglossum eximium, O. Aireworth Orchid Dene var., a richly-blotched form, Sophrocattleya Saxa Orchid Dene var., and a brilliantly-coloured hybrid from Sophronitis grandiflora and Cattleya granulosa, in which the deeply-cut lip of the latter was very conspicuous.

Mr. C. F. Waters, Balcombe, Sussex, staged a good group, including a number of Cattleya Mossiæ, C. Warscewiczii, Mendelii, and citrina, Miltonia vexillaria, two good examples of the beautiful M. Phalænopsis, Læliocattleya Aphrodite and Canhamiana, Vanda cœrulea, Renanthera Imschootiana, Brassavola Digbyana, Odontoglossum Pescatorei, and others.

Mr. H. Dixon, Wandsworth Common, staged an interesting group, containing some good Cattleya Warscewiczii and C. Mossiæ Wageneri, Læliocattleya Cowanii and Martinetii, Bulbophyllum Lobbii, Cypripedium callosum Sanderæ, a nice cluster of Cochlioda Nœtzliana, Odontoglossum excellens, concinnum, and others, Odontioda Wilsonii, O. Diana, and two very diverse secondary hybrid Odontiodas of unknown parentage from the same capsule.

Messrs. Armstrong & Brown, Tunbridge Wells, staged a small group of Cattleyas and Læliocattleyas, Odontoglossums, and Masdevallias.

At the meeting held at the Royal Horticultural Hall, Vincent Square, Westminster, on July 14th, the exhibits were not numerous, though quite up to the average for the season, and the occasion was marked by the appearance of a splendid new Odontonia from Messrs. Charlesworth & Co., in which the qualities of Odontoglossum Uroskinneri and Miltonia vexillaria are combined. There were several other interesting exhibits, and the awards consisted of two medals, three First-class Certificates, one Award of Merit, and two Cultural Commendations.

Orchid Committee present: J. Gurney Fowler, Esq. (in the Chair), Messrs. J. O'Brien (hon. sec.), Gurney Wilson, W. Bolton, S. W. Flory, W. H. White, E. H. Davidson, J. E. Shill, W. H. Hatcher, W. Cobb, T. Armstrong, C. H. Curtis, R. A. Rolfe, C. J. Lucas, Sir Harry J. Veitch, and Sir Jeremiah Colman, Bart.

E. R. Ashton, Esq., Broadlands, Tunbridge Wells, showed Sophrocatlælia Sibyl, having bronzy orange sepals and petals, and a ruby lip, and Odontioda Hemptinneana Broadlands var., prettily blotched with orange red on a pale ground, and the margins of the segments rose.

H. S. Goodson, Esq., Fairlawn, Putney (gr. Mr. Day), sent an Odontoglossum much resembling O. amabile in character, and having many small purple dots on the centre of the segments.

F. Menteith Ogilvie, Esq., The Shrubbery, Oxford (gr. Mr. Balmforth), sent Odontoglossum Uroanthum (Kegeljanii × Uroskinneri), having greenish yellow sepals and petals, barred and blotched with chocolate brown, and the lip white, with a large purple basal blotch and several smaller spots in front.

Messrs. Stuart Low & Co., Jarvisbrook, Sussex, staged a good group of Orchids, including some fine Cattleya Warscewiczii, C. Gaskelliana alba, C. Harrisoniana, C. Mossiæ Reineckeana, and C. Rex, examples of Oncidium macranthum and sarcodes, Vanda teres, Anguloa Clowesii, Bulbophyllum Lobbii, Epidendrum nemorale, Odontoglossum Williamsianum, Rhynchostylis retusa, Dendrobium pulchellum and Dearei, Phalænopsis amabilis, Odontioda Charlesworthii, and others (Silver Banksian Medal).

Messrs. Sander & Sons, St. Albans, staged an interesting group, including the handsome Cœlogyne Mooreana and C. sulphurea, Vanda Parishii, Dendrobium Sanderæ, hercoglossum, and regium, Stanhopea tigrina, Masdevallia elephanticeps, simula, and calura, Anguloa eburnea, Ancistrochilus Thomsonianus, Nanodes Medusæ, Physosiphon Loddigesii, Listrostachys O'Brieniana, Bulbophyllum densiflorum, Eria acervata, Eulophia Ledienii, and a few good Cattleyas, Læliocattleyas, Cypripediums, and Odontoglossums (Silver Banksian Medal).

Messrs. Flory & Black, Orchid Nursery, Slough, staged a small group,

including three home-raised Disa grandiflora, a good plant of Sarcopodium acuminatum, Cattleya Gaskelliana alba, and four plants of a nearly allied form with pale yellow throat to the lip and a flush of lilac in front.

Messrs. J. & A. McBean, Cooksbridge, staged a pretty little group, including fine examples of Dendrobium Sanderæ and Dearei, Læliocattleya Aphrodite, two good Odontioda Charlesworthii, a fine O. Thwaitesii, and O. Vuylstekeæ, Odontoglossum Hyeanum (Harryanum × luteopurpureum), a fine seedling O. crispum, and others.

FIRST-CLASS CERTIFICATES.

MILTONIA VEXILLARIA REV. W. WILKS (vexillaria gigantea × v. Queen Alexandra).—A form with immense flowers, the lip measuring over three inches across, and the colour pale lilac, with a few red lines round the yellow disc, while the sepals and petals are relatively broad, and darker in colour, with a slight purple flush towards the base. Exhibited by J. Gurney Fowler, Esq., Brackenhurst, Pembury (gr. Mr. J. Davis).

ODONTOGLOSSUM PERCULTUM KING GEORGE (Rolfeæ × armainvillierense).—A very large and handsome form, bearing a spike of twelve finely-shaped flowers with a broad zone of violet-purple blotches. It has much improved since it received an Award of Merit two years ago. Exhibited by F. Monteith Ogilvie, Esq., The Shrubbery, Oxford.

ODONTONIA CHARLESWORTHII (see page 241, fig. 28).

AWARD OF MERIT.

BRASSOCATTLEYA ILENE (B.-c. Maroniæ × C. Dowiana).—A handsome hybrid, bearing two large lilac-rose flowers, with a darker lip, and having a zone of purple lines round the deep yellow throat. Exhibited by Baron Bruno Schröder, The Dell, Englefield Green (gr. Mr. Shill).

CULTURAL COMMENDATIONS.

CATTLEYA WARSCEWICZII.—To Mr. J. Davis, gardener to J. Gurney Fowler, Esq., for a splendidly-grown specimen, bearing six spikes and an aggregate of twenty-three richly-coloured flowers.

ODONTOGLOSSUM PESCATOREI.—To Mr. W. H. White, gr. to Elizabeth, Lady Lawrence, Burford, for a finely-grown specimen bearing five graceful panicles of flowers.

At the meeting held on July 28th there was a rather small display of Orchids, including several choice things, among them the handsome Oncidium Leopoldianum, which has at last flowered in cultivation, and the awards consisted of two medals and four Awards of Merit.

Orchid Committee present: J. Gurney Fowler, Esq. (in the Chair), and Messrs. J. O'Brien (hon. sec.), Gurney Wilson, W. Bolton, R. G. Thwaites, A. McBean, T. Armstrong, J. E. Shill, W. H. Hatcher, A. Dye, E. H. Davidson, C. H. Curtis, S. W. Flory, and Sir Harry J. Veitch.

His Grace the Duke of Marlborough, Blenheim Palace, Woodstock (gr. Mr. Hunter), showed Cypripedium Lawrebel Blenheim var., and Vanda cœrulea Grace, the latter bearing a fine spike of thirteen flowers.

J. Gurney Fowler, Esq., Brackenhurst, Pembury (gr. Mr. Davis), sent Læliocattleya Maqueda Brackenhurst var., a richly-coloured form.

R. G. Thwaites, Esq., Chessington, Streatham (gr. Mr. Hannington), sent Odontioda Isis (Odm. Rolfeæ × C. vulcanica), and O. Stella (Odm. percultum × C. vulcanica).

E. F. Clark, Esq., Evershot, Dorset, sent flowers of a fine form of Cattleya Warscewiczii Sanderiana and two Læliocattleyas.

Messrs. Charlesworth and Co., Haywards Heath, staged a group of choice things, including the new Brassocattleya Dora (B. cucullata × C. Mossiæ Wageneri), with fragrant white flowers, some good Miltonia vexillaria, a fine specimen of Odontoglossum Rolfeæ bearing a panicle with ten branches, and producing a very graceful effect, good specimens of O. armainvillierense and its var. xanthotes, O. coronarium, and other good things (Silver Flora Medal).

Messrs. Sander & Sons, St. Albans, staged a very interesting group, including Oncidium Sanderæ, Cœlogyne asperata, Acineta Humboldtii, Dendrobium Sanderæ, Brassia caudata and Forgetiana, Cirrhopetalum pulchrum, Bulbophyllum patens, Lycaste Tunstillii punctatum, Masdevallia elephanticeps, and other good things (Silver Flora Medal).

Mr. C. F. Waters, Balcombe, sent a good rose-coloured Brassocattleya of unrecorded parentage.

AWARDS OF MERIT.

CATTLEYA ASTRON (C. Harrisoniana alba × Dusseldorfii Undine).—A promising hybrid, flowering for the first time, and bearing a single pure white flower, with a sulphur yellow disc to the lip. Exhibited by Baron Bruno Schröder, The Dell, Englefield Green (gr. Mr. Shill).

CATTLEYA HARDYANA RUBENS.—A richly-coloured form, having bright rose-purple sepals and petals, and a ruby-crimson lip, margined with lilac, and with much yellow in the throat. Exhibited by J. Gurney Fowler, Esq., Bruckenhurst, Pembury (gr. Mr. Davis).

LÆLIOCATTLEYA MISS LOUISA FOWLER (L.-c. callistoglossa × C. granulosa). — A fine hybrid, bearing a spike of six flowers, with lilac-pink sepals and petals, and a deeply three-lobed lip, with a dark purple front lobe and some yellow at the base. Exhibited by J. Gurney Fowler, Esq.

ONCIDIUM LEOPOLDIANUM (Rolfe).—A handsome species, allied to O. corynephorum, but differing in having a deltoid, not broadly rounded lip. It bore a twining panicle of 45 blooms, the sepals and petals being whitish, freckled with rose, and the lip violet in front, margined with white, and

the crest bright yellow. Exhibited by H. S. Goodson, Esq., Fairlawn, Putney (gr. Mr. Day).

MANCHESTER & NORTH OF ENGLAND ORCHID.

At the meeting held at the Coal Exchange, Manchester, on Thursday, June 18th, the members of Committee present were: Z. A. Ward, Esq. (in the Chair), Messrs. R. Ashworth, J. J. Bolton, J. C. Cowan, J. Cypher, J. Evans, J. Howes, A. J. Keeling, J. Lupton, D. McLeod, W. J. Morgan, W. Shackleton, H. Thorp, G. Weatherby, and H. Arthur (Secretary).

A Large Silver-gilt Medal was awarded to Col. J. Rutherford, M.P., Blackburn (gr. Mr. Lupton), for an excellent group of Miltonias and Cattleyas, the varieties of C. Mossiæ being very beautiful.

Silver-gilt Medals were awarded to R. Ashworth, Esq., Newchurch (gr. Mr. Gilden), for a fine mixed group, and to Wm. Thompson, Esq., Walton Grange (gr. Mr. Howes), for a group chiefly composed of choice Odontoglossums.

A Large Silver Medal was awarded to Messrs. Hassall & Co., Southgate, London, for a fine group of Cattleyas, Læliocattleyas, Miltonias, and Odontoglossums.

Interesting exhibits were staged by H. J. Bromilow, Esq., Rann Lea, Liverpool (gr. Mr. Morgan); A. J. Oakshott, Esq., Bidston (gr. Mr. Findlow); Messrs. A. J. Keeling & Sons, Bradford, and Mr. W. Shackleton, Highfield, Bradford.

FIRST-CLASS CERTIFICATES.

Læliocattleya Cicely (L. Latona × C. Mossiæ) and Odontioda Brewii Rann Lea var., a large flower of good shape, with distinct lip, both from H. J. Bromilow, Esq.

Odontoglossum eximium var. Excelsior, a round flower of solid purple colour, with light edging, and O. Dorothy Arkle, a large flower with brilliant markings, both from Wm. Thompson, Esq.

Odontoglossum Jane Leggatt, a large flower of good shape and substance, from A. J. Oakshott, Esq.

Miltonia Charlesworthii Beardwood var. the best of the type seen in the North, from Col. J. Rutherford, M.P.

AWARDS OF MERIT.

Læliocattleya Fascinator var. Samson, L.-c. Martinetii var. Ruby, Odontoglossum Waterloo, Cypripedium Greyii Ashlands var. (niveum × Godefroyæ), all from R. Ashworth, Esq.

Odontoglossum Peacock and O. Christopher Guest, both from Wm Thompson, Esq.

Brassocattleya Endymion and Cattleya Mossiæ splendens, both from Col. J. Rutherford, M.P.

Odontoglossum crispum Catherine Oakshott, from A. J. Oakshott, Esq.

Læliocattleya Canhamiana Rex Hassall's var., from Messrs. Hassall & Co., Southgate.

At the meeting held on July 16th, the members of Committee present were:—Z. A. Ward, Esq. (in the Chair), Messrs. R. Ashworth, J. J. Bolton, A. G. Ellwood, A. Hanmer, J. Howes, J. Lupton, D. McLeod, C. Parker, W. Shackleton, H. Thorp, and H. Arthur (Secretary).

Large Silver Medals were awarded to R. Ashworth, Esq., Newchurch (gr. Mr. Gilden); Col. J. Rutherford, M.P., Blackburn (gr. Mr. Lupton), and Wm. Thompson, Esq., Walton Grange, Stone (gr. Mr. Howes), for fine miscellaneous groups.

Interesting exhibits were staged by O. O. Wrigley, Esq., Bury (gr. Mr. Rogers); Messrs. Charlesworth & Co., Haywards Heath, and Mr. W. Shackleton, Highfield, Bradford.

FIRST-CLASS CERTIFICATE.

Odontioda Brewii Merle Dene var., a very fine flower, with light purple lip and dark spotting, from A. J. Oakshott, Esq., Bidston (gr. Mr. Findlow).

AWARDS OF MERIT.

Cattleya gigas Walton Giant, Odontoglossum eximium purpurascens, and O. Mrs. A. E. Thompson, all from Wm. Thompson, Esq.

Cattleya gigas coloratum, from R. Ashworth, Esq.

CULTURAL CERTIFICATES AND BRONZE MEDALS.

Mr. E. Rogers (gr. to O. O. Wrigley, Esq.), for Anguloa Ruckeriana sanguinea and Lycaste tricolor albens, the latter a plant in a 4½ inch pot bearing 32 flowers.

Mr. J. Howes (gr. to Wm. Thompson, Esq.) for Cattleya gigas Walton Giant.

THE AMATEUR'S COLLECTION.

By C. ALWYN HARRISON.

THE general treatment required by the inmates of the Cattleya house this month will not differ to any great extent from that advised for July, with perhaps, however, the admission of more air, and especially at night, as a cool evening's rest after the fierce heat of the day will be found very beneficial. It is astonishing how largely the conditions of the weather of this and the following month affect winter-flowering Orchids, and Cattleyas in particular. If brilliant sunshine is experienced our plants will flower with great profusion, and bear blossoms of rich coloration, but if the summer proves cloudy and rainy the plants will not produce such

satisfactory flowering results, owing to the lack of sun to enable them to ripen their bulbs to their fullest extent.

Such Cattleyas as labiata, Octave Doin, Raphaeliæ, Rothschildiana, Iris, Venus, Rhoda, and others, will now be completing their growths, and throwing up flower trusses at the base of the sheaths. Give them a light and airy position, and reduce their supply of water until the blooms are well advanced. Vanda cœrulea will now be in spike, and should receive plentiful supplies of water, and be well exposed to the light, and, if so treated, the flowers will be of good size and rich in colour, enabling their beautiful qualities to be brought out to perfection.

Odontoglossum grande will now be coming away very well, and needs abundance of water, a good dose daily being usually required. Weak liquid cow manure water may be given twice a week if the grower desires, and some successful cultivators strongly advocate its employment, though personally I have not observed much benefit from its use.

The autumn-flowering variety of Epidendrum vitellinum is now fully grown and throwing up its spikes of brilliant scarlet blossoms, which will keep eight weeks or more in perfection. These flower spikes should be carefully tied to neat sticks, and a sharp look out kept for slugs, which show much partiality for these and also for the succulent roots.

Any Stanhopeas which have finished flowering may receive fresh rooting material, and, if needing more room, should be placed in larger baskets. Do not place any crocks in the bottom of the baskets, as these Orchids push their flower scapes down and from the bottom of the baskets. For compost use a mixture of osmunda fibre and sphagnum moss, and keep them damp and syringe overhead frequently. These handsome and curiously-formed Orchids thoroughly merit a place in every Cattleya house, and since the ideal position for them is to suspend them from the roof, many can be thus accommodated, even in a house of small dimensions. Among the best known are S. eburnea, oculata, Wardii, and tigrina.

SPOT ON VANDA CŒRULEA.

I SEND two leaves of Vanda cœrulea, hoping to receive your opinion about the minute spots which appear on the under surface of the leaves and which turn black after some time. When these minute spots first appeared, I thought they were caused by thrips or red spider, but this is unlikely, for I could not discover these pests. Is it not of fungous nature, a fungus which penetrates by the stomata and thrives under certain conditions which prevail in the house? It is very curious to note that the young leaves which are developing are not touched. The lower leaves, and

those of last season only, are showing these minute spots (and it is to be noted that old leaves of imported plants have the same spots). I cannot admit that the insecticides used—XL All and Phytophyline—could be responsible for the damage, as the young leaves show nothing!

As I have a house of 1500 plants of this Vanda I am very alarmed, and I ask you kindly to give me your advice about these spots. If it is of fungous nature what remedy do you suggest? In common with everybody having Vanda in cultivation, I have, in small degree, what is termed black spot at the apex of the leaves. Would the minute spots be of the same nature?

Bois de Breux, Liège. CHARLES SLADDEN.

The leaves sent have been submitted to microscopical examination, but, as in previous cases, no fungus mycelium can be detected. We are inclined to think that the minute discoloured spots are only the earlier stages of what is know as Black Spot, and that both are due to the same cause, which may have been a chill caused by drip from the roof in cold weather. The immunity of the young leaves suggests that the cause has ceased for the time being, but these may also be affected when the cold season arrives, unless the cause can be prevented.

Some years ago the Spot Disease of Orchids was worked out by Mr. G. Massee, of Kew, and a summary of his conclusions and experiments was given in these pages (iv. pp. 19-20). In two cases he succeeded in producing the disease artificially. It first appears in the form of minute pale spots on the upper surface of the leaf, sometimes few and scattered, at others more numerous. At first they are not conspicuous, and likely to escape observation unless specially looked for, but they soon assume a pale brown colour, and gradually increase in size, sometimes becoming confluent. The tissues are completely disorganised, and, owing to the collapse of diseased cells beneath the epidermis, the surface of the spot becomes somewhat depressed. Mr. Massee concludes that the disease known as "spot" is of non-parasitic origin, the initial cause being the presence of minute drops of water on the surface of the leaves at a time when the temperature is exceptionally low and the roots copiously supplied with water. The effect of the chill produced by the drops of water under the above conditions is to cause disorganisation of the cells of the leaf underlying the drops, and the disappearance of the chlorophyll, which is followed by the precipitation of tannin and other substances, forming a globular sphere in each cell, and eventually the complete disintegration of the cells. It is mainly caused by the three following conditions: (1) too high a temperature; (2) too much water and not sufficient air in contact with the roots, and (3) watering or spraying with a falling instead of a rising temperature.—ED. *O.R.*

CYPRIPEDIUM PHILIPPINENSE

THE annexed figure represents the inflorescence of Cypripedium philippinense, from the collection of E. Ashworth, Esq., Harefield Hall, Wilmslow, which was described at page 223, and is reproduced from

Fig 29. CYPRIPEDIUM PHILIPPINENSE.

a photograph kindly sent by Mr. Ashworth, together with a second one showing the entire plant on a much reduced scale. As already remarked, this plant was purchased at the Howick House Sale about twenty years ago under the name of C. Rœbelenii, which, however, is now generally

regarded as a form of C. philippinense. C. Rœbelenii was described in 1883 by Reichenbach (*Gard. Chron.*, 1883, ii. p. 684), from materials received from Consul Kienast Zolly, which had been sent from the Philippines by C. Röbelen. Reichenbach then indicated a doubt about its distinctness, but rather relied upon the yellow lip without any green veinings as a distinguishing character. C. philippinense was described twenty-one years earlier from dried specimens (Rchb. f. in *Bonplandia*, 1862, p. 335), but the author does not state how he obtained them. Three years later, C. lævigatum, Batem., was figured and described in the *Botanical Magazine* (t. 5508), from a plant which flowered with Messrs. James Veitch & Sons, Chelsea, but this was soon pointed out as synonymous with C. philippinense, and it is probable that Bateman overlooked the earlier description. It appears that the species was discovered by the late Mr. John Gould Veitch, who went to the Philippines to obtain Vanda Batemanii. After long search, and when almost driven to despair at his non-success, he found the plant, and with it this Cypripedium growing on its roots. C. philippinense is a striking species, with long, spirally-twisted, red-purple petals, a cream-coloured dorsal sepal, lined with purple, and a bright yellow lip with some green veinings. Mr. Ashworth remarks that it is a most charming flower. It is a Warm house species, and thrives under the same treatment as C. Rothschildianum and its allies.

CULTURE OF PHAIUS SIMULANS.

IN your issue of May last, under the heading of Calendar of Operations, Mr. Briscoe says, referring to Phaius simulans and P. tuberculosus: "Where growers happen to possess a few plants it is advisable to try them in different positions, for up to the present their cultural requirements are not fully understood. A few years after being imported they gradually deteriorate and eventually die, a fate which overtakes some other Madagascar Orchids." I have seen Phaius simulans in Rio de Janeiro, growing here in the open air, planted, in common with every other species of flowers, on the ground, in ordinary loam, and it would be impossible to obtain better blooms and more perfectly-developed flowers, and stronger plants, than those I have seen. They flower mostly between September and October. The mean temperature of Rio is 63° F., the thermometer going down to 59° about three months every year, and going up as high as 75° during the day for about nine months. During the months of January, February, and March the heat during the day rises to about 120° F. in the sun and about 90° in the shade; but these extremes never last more than a few days at a time.

I trust this indication will be of use to cultivators who may wish to discard the usual fibres, and try to cultivate Phaius in ordinary loam, well drained, and as much as possible in the open air during mild weather.

Belem do Pará, Brazil. J. SIMAO DA COSTA.

[There is something mysterious about the behaviour of these plants. When the true P. tuberculosus was introduced it was thought that, being terrestrial, it would succeed better than P. simulans, but this has not been borne out by experience. M. Warpur, the introducer of P. tuberculosus, states that it grows in the highest part of slopes in the high forest in half dry humus, at an altitude of 1200 to 1500 feet. He recommends an intermediate temperature for it. P. simulans, he states, climbs on tree trunks, at a lower elevation, and requires more heat and moisture. It would be interesting to know if P. simulans continues to thrive under the conditions named.—ED. *O.R.*]

ORCHID NOTES AND NEWS.

TWO meetings of the Royal Horticultural Society will be held at the Royal Horticultural Hall, Vincent Square, Westminster, during August, on the 11th and 25th, when the Orchid Committee will meet at the usual hour, 12 o'clock noon.

The next meeting of the Manchester and North of England Orchid Society will be held at the Coal Exchange, Manchester, on August 13th. The Committee meets at noon, and the exhibits are open to the inspection of members and the public from 1 to 4 p.m.

Mr. D. A. Cowan, who, during the last seven years, has represented the firm of Messrs. Charlesworth & Co., of Haywards Heath, has relinquished that position on July 13th, 1914. In the future he will act in a similar capacity for Messrs. J. & A. McBean, Cooksbridge, Sussex, with whom he has entered into partnership.

ERIA PILIFERA.—With reference to the article on Eria pilifera, at page 171, Mr. J. J. Smith, of the Buitenzorg Botanic Garden, Java, writes from the Rijks Herbarium, Leiden: "I have much pleasure in informing you that the plant mentioned from 'Gojoe (Java?)' was collected in the Gojoe-laaden, near Atjeh, Sumatra, not by myself, but, I believe, by General Van Daalen, who sent the plant alive to Buitenzorg." We thank Mr. Smith for the information. The reference was to a dried specimen sent by him to Kew localised "Gojoe," and as we failed to find the locality we wrote "(Java?)" as an inference. Atjeh is situated near the western point of Sumatra, nearly opposite to the Malay Peninsula locality. R.A.R.

ORCHID PORTRAITS.

CATTLEYA IRENE.—*Gard. Chron.*, 1914, ii. pp. 13, 15, fig. 9.

CATTLEYA WARSCEWICZII.—*Gard. Chron.*, 1914, ii. pp. 60, 62, fig. 25.

CYPRIPEDIUM MIRUM.—*Orch. World*, iv. p. 230, fig.

DENDROBIUM FALCONERI.—*Horticulture*, 1914, p. 39, fig.

EPIDENDRUM ELLISII.—*Journ. Hort.*, 1914, ii. p. 35, fig.

GONGORA GROSSA, Rchb. f.—*Bot. Mag.*, t. 8562.

MILTONIA BLEUANA HESSLE VAR.—*Journ. Hort.*, 1914, ii. pp. 75, 95, fig.

MILTONIA VEXILLARIA REV. W. WILKS.—*Gard. Chron.*, 1914, ii. pp. 60, 61, fig. 24; *Garden*, 1914, p. 380, fig.

ODONTOGLOSSUM AIGLON MAJESTICUM.—*Journ. Hort.*, 1914, ii. p. 14, fig.

ODONTOGLOSSUM ATHELTUM.—*Orch. World*, iv. p. 232, fig.

ODONTOGLOSSUM EXIMIUM SOLUM.— *Gard. Mag.*, 1914, p. 539, fig.; *Journ. Hort.*, 1914, ii. p. 37, fig.

ODONTOGLOSSUM HELIUS.—*Orch. World*, iv. p. 231, fig.

ODONTOGLOSSUM MIRANDUS.—*Orch. World*, iv. p. 231, fig.

ODONTOGLOSSUM MRS. W. THOMPSON.—*Orch. World*, iv. p. 229, fig.

ODONTOGLOSSUM PAPILIUM.—*Orch. World*, iv. p. 232, fig.

ODONTONIA CHARLESWORTHII.—*Gard. Mag.*, 1914, p. 574, fig.

ODONTONIA CLEVERLEYANA.—*Gard. Chron.*, 1914, ii. p. 29, fig. 15.

PLEIONE HOOKERIANA.—*Orch. World*, iv. p. 221, fig.

VANILLA POMPONA.—*Orch. World*, iv. p. 226, fig.; *Journ. Hort.*, 1914, ii. p. 36, fig.

VUYLSTEKEARA INSIGNIS.—*Gard. Chron.*, 1914, ii. pp. 14, 15, fig. 10.

ZYGOPETALUM SIR TREVOR VAR. BREWII.—*Orch. World*, iv. p, 222, fig.

ANSWERS TO CORRESPONDENTS.

[*Orchids are named and questions answered here as far as possible. Correspondents are requested to give the native country or parentage of plants sent. An* ADDRESSED *postcard must be sent if a reply by post is desired (abroad, reply postcards should be used). Subjects of special interest will be dealt with in the body of the work*].

E.W.—Shading and abundant moisture on the floors and stages are efficient means of keeping the temperature down during hot weather, and correct to some extent the dry atmosphere caused by too abundant ventilation.

H.R.S.—The plants are Cœlogyne flavida, Oncidium uniflorum, and the leaf, we believe, Anœctochilus sikkimensis. The note is unavoidabiy left over until next month.

J.C.—The tinge of pale lilac in the lip shows thkt the flower is not an albino.

H.G.—Unavoidably postponed until next month.

Received.—J.S.C., P.P., C.S., H.R.S., N.G., A. McB., J.S.

VOL. XXII. SEPTEMBER, 1914. No. 261.

THE ORCHID REVIEW

Edited by R. ALLEN ROLFE, A.L.S.

CONTENTS:

	PAGE
Amateur's Collection	285
Angræcums in Madagascar	283
Answers to Correspondents ...	288
Bulbophyllum vitiense	272
Calendar of Operations for September	275
Calalogue, An old	279
Cattleya Fly	261
Cattleya Sybil and its varieties ...	265
Cattleyas, The resting of	262
Dendrobium Papilio	272
Epidendrum O'Brienianum true from seed	280
Epidendrum pentotis	280
Eria sonkaris	263
Grammangis Ellisii	273
Habenaria procera	278
Liparis nana	287
Manurial aid for Orchids	264
Novelties	270
Odontonia Magali-Sander var xanthotes	286
Oncidium tenue	269
Orchid Notes and News	287
Orchid Portraits	288
Orchids at Kew	286
Our Note Book	257
Rhynchostylis guttata	281
Rhynchostylis retusa	282

ILLUSTRATIONS.

Angræcum sesquipedale	284
Cattleya Sybil and its varieties ...	265
Cycnoches densiflorum	260
Grammangis Ellisii	273
Rhynchostylis guttata	281

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The Orchid Review

VOL. XXII. SEPTEMBER, 1914. NO. 261.

OUR NOTE BOOK.

SINCE our last notes were written a great shadow has fallen. War, blind, cruel, and insensate, has broken out among the nations, and the peaceful arts have received a set-back, the extent and duration of which no one can foresee. We deplore it, for Orchidology is international, its votaries are in every land, and our readers are found in every quarter of the globe. But regrets are useless, and all we can do is to make some attempt to alleviate the miseries which are inseparable from such a titanic struggle. The wounded, the sick, and the unemployed will need our utmost sympathy and help, and we are confident that Orchidists will not be behind their fellow citizens in assisting in the good work. We have been invited to and have much pleasure in commending the National Relief Fund which is being so successfully raised by H.R.H. the Prince of Wales. To contribute to so excellent a cause must be accounted an honour and a duty. All remittances should be addressed to His Royal Highness, at Buckingham Palace. These and other letters to the Fund need not be stamped.

Among the earliest inconveniences of the War was the alteration of postal arrangements and the congestion of traffic, and the two August meetings of the Royal Horticultural Society had to be abandoned, owing to the fact that the Hall was required by the War Office. Another effect was the reduction of the staffs of various establishments owing to the number of territorials and reservists that have been called to the ranks. In certain cases the results are more serious. Our French contemporary, the *Revue Horticole*, was only able to issue a single sheet of news, including an announcement that it must suspend operations for the present, as the entire staff—editors, correspondents, clerks, and printers—have been called to the front.

It is impossible to say how far the Orchid Trade will be affected; much

will depend on the length of time the War lasts, but an attempt should be made to "carry on." The plants will require the same amount of attention, and it is hoped that establishments will be maintained as far as possible. We sincerely hope and pray that a settlement may not be long delayed, when things will gradually return to their normal condition.

Orchidists are unquestionably interested in Heredity and Evolution, which was the subject of Prof. Bateson's address at the opening of the British Association meeting at Melbourne, and our appetite is whetted by a newspaper cutting which states: "Professor Bateson's challenge to Darwinism marks an epoch. It is the most complete and authoritative statement of those biologists who have turned to Mendelism for the elucidation of evolution and the marvellous adaptation to environment of the higher vertebrates"—we hoped he was going to say Orchids—"which they have sought in vain in Darwinism." It is disappointingly short, but it is explained that "the war has relegated to a very humble corner of the English Press the doings of the British Association now meeting in Australia, and only the briefest summary has been possible." A cutting from another source is rather more detailed, but unsatisfying, so we turn to the pages of *Nature* and are not disappointed, for we find the address given in fourteen closely printed columns. It includes a good deal with which we are already familiar, and not much about Orchids, so we shall not attempt a summary, but one or two points merit consideration.

It is conceded that we owe to Darwin "the first full perception of the significance of variation," and that "with him began a general recognition of variation as a phenomenon widely occuring in nature." Again, "Darwin regarded variability as a property inherent in living things, and eventually we must consider whether this conception is well founded." We are also told that "the doctrine of the survival of the fittest is undeniable so long as it is applied to the organism *as a whole* (the italics are ours). . . Yet it was in application to the parts, to the details of specific difference, to the spots on the peacock's tail, to the colouring of an Orchid flower, and hosts of such examples, that the potency of natural selection was urged with the strongest emphasis. Shorn of these pretentions the doctrine of the survival of favoured races is a truism, helping scarcely at all to account for the diversity of species." But who ever heard of the survival of *part* of an organism? And if the doctrine of progressive modification of parts is a "pretension," how—to give an example—are we to account for the origin of the rostellum of an Orchid, and its progressive modification and wide range of variation in the various tribes and genera? How came it to replace a missing stigma? And why has the viscus that it exudes

acquired the new property of drying in a few seconds on exposure to the air? We cannot wait for an answer until the question is settled whether "genetic factors are permanent and indestructible," as the author says some of his Mendelian colleagues assert, or whether they "occasionally undergo a quantitative disintegration," as he now admits is possible, and which breeders have known all the time. He says "It is no time to discuss the origin of the Mollusca or of Dicotyledons, while we are not even sure how it came to pass that Primula obconica has in twenty-five years produced its abundant new forms almost under our eyes." We don't exactly see the connection, but we will propound to him that much simpler question about the rostellum of an Orchid. And we await an answer!

We now pass on to the origin of cultivated races, and we find Orchids included among "multitudes of crosses of which we have pretty full histories"; the behaviour of crosses; the amazing polymorphism in the second generation from a cross in Antirrhinum, and Lotzy's suggestion that all variation may be due to such crossing, which we are told "will at least do something to expose the artificiality of systematic zoology and botany." But none of these things seem to lead us anywhere in particular so far as evolution is concerned, for we are told that "this is no time for devising theories of evolution, and I propound none."

The conclusion somehow does not seem quite satisfactory, for the lecturer proceeds: "But as we have got to recognise that there has been an evolution, that somehow or other the forms of life have arisen from fewer forms, we may as well see whether we are limited to the old view that evolutionary progress is from the simple to the complex, and whether after all it is conceivable that the progress was the other way about. . . . I ask you simply to open your minds to this possibility. It involves a certain effort. We have to reverse our habitual modes of thought. At first it may seem rank absurdity to suppose that the primordial form or forms of protoplasm could have contained complexity enough to produce the diverse types of life." We quite agree, and not only *at first*, but at last, and all the time. It is a first-rate illustration of topsyturveydom, and unfortunately cannot be attributed to the fact that the address was delivered at the Antipodes, where things have a habit of arranging themselves upside down.

A suggestion of powers conveyed to the organism by additions from outside is only mentioned to be abandoned, but it is suggested that "by the re-arrangement of a very moderate number of things we soon reach a

number of possibilities practically infinite. That primordial life may have been of small dimensions need not disturb us. Quantity is no account in these considerations. Shakespeare once existed as a speck of protoplasm not so big as a pin's head." We never suspected that Shakespeare was at all primordial, but we can point to something still smaller but quite sufficiently complex. This plant (fig. 30) of Cycnoches densiflorum was

Fig. 30. CYCNOCHES DENSIFLORUM.

once a speck of protoplasm so minute that it could scarcely be seen without a microscope. It was then packed away in a small cavity with hundreds of thousands if not millions* of others just like itself, and now look at it.

* We have not counted them, and never had the opportunity, but in the case of Cycnoches chlorochilon the number of seeds is estimated at about four millions, or about equal to the population of London. (See *O.R.*, xvii. p. 168).

It is an Orchid, which alone says much, but it produces two totally different kinds of flowers, or rather the male and female flowers are quite unlike—the males numerous, small, membranous, spotted, with star-like lip, and long, slender column—the females few, large, fleshy, unspotted, with fleshy, solid lip, and short, stout column. There are several others with flowers just as diverse in shape, and one where the males are purple and the females green, while another has both sexes green. But in another set of species most of the parts in the two sexes are alike in size, shape, and colour. In other words, one set of species shows a marvellous series of secondary sexual characters which are undeveloped in the other.

Prof. Bateson may tell us that it is the other way about, or perhaps that we are looking at the organism "as a whole"; that its differences arose by crossing, or that some of its characters have undergone segregation. He may ask us whether we think all the species arose from one original Cycnoches, or admitting it may suggest that the less complex ones must have lost something. It may be rank heresy to say it, but we regard it as a case of evolution by progressive modification, or the survival of useful variations. They are *adaptations*, and we italicise a word for which Mendelians seem to have no use. It would be interesting, of course, to know how many steps there are, and how they arose; but they have arisen, and are there for all the world to see, and if Mendelians can tell us how, by sticking to their "breeding pens" and their "seed pans," we shall be content. But it will not alter the fact that the sign-posts are there, and that Darwin taught us a good deal of the language in which they are written.

And let us beware of elevating analytical methods into an obsession. They will not teach us everything, and a good deal has been tacked on to Mendelism that would probably astonish the learned Abbé himself. The late Prof. C. C. Babington once told with great relish a story, how a young lady came into his room, and, seeing a specimen of Peziza coccinea on his table, was struck by its beauty, and asked its name. On being told, she exclaimed, "Peziza! why I have been working at that for a fortnight." The story is told on the authority of the Editor of the *Journal of Botany*, and the moral lies in the application of it.

CATTLEYA FLY.—Some of our readers are aware of the existence of a fly which forms galls or swellings near the growing points of Cattleya roots, thereby causing both disfigurement and damage, and we are asked whether any remedy is known besides the somewhat drastic one of cutting them off. We believe the fly is distinct from the one which attacks the young growths, and the experience of others would be appreciated.

THE RESTING OF CATTLEYAS.

A CORRESPONDENT asks for information as to the resting of Cattleyas, particularly the species and hybrids of the labiata group, some of which seem to vary much in their requirements. The different kinds have to be grown together in a moderate-sized house, and as they grow and flower at different periods, it is difficult to know when to give and when to withhold water. In such cases the plants have to be treated individually, and probably the period of vegetative activity affords the safest guide. The production of new roots from the rhizome after a period of quiescence and the production of new growths are signs of renewed activity, and of the need of a gradual increase in the supply of water, and this will continue until the growths are fully matured.

The Cattleyas of the labiata group divide themselves naturally into two groups with respect to their period of growth and flowering. There is one set of species that flower from the young growths without any period of resting, and this includes C. Warneri, from Brazil, C. Gaskelliana and C. Lueddemanniana, from Venezuela, C. Dowiana, from Costa Rica, C. Dowiana aurea and C. Warscewiczii (gigas), from Colombia, and, of course, C. Hardyana, the natural hybrid between the two latter. These should be kept moist after the flowering period is over and until the growths are fully matured, after which the supply of water should be gradually reduced, and when the plants are at rest a very moderate supply of water will suffice. As soon as the young growths reach a good size, if strong enough, a sheath will begin to push, and it is highly important that the plants should not receive a check at this stage, otherwise the flowers may fail to develop or be of inferior quality.

The second group consists of species that take an interval of rest after maturing their growths before flowering, and these naturally require somewhat different treatment. They include C. Mossiæ and C. Percivaliana, from Venezuela, C. Mendelii, C. Trianæ, and C. Schrœderæ, from Colombia, and C. Lawrenceana, from British Guiana. As these mature their growths, the supply of water should be gradually reduced until the plants are at rest, when the compost should be kept moderately dry until about four weeks before the flowering period, when more water should be given to enable the flower buds to mature properly, and this should continue until the flowers are fully developed, after which they must again be kept moderately dry until growth recommences.

The old autumn-flowering C. labiata is somewhat intermediate between the two groups, as it flowers after a very short period of rest, and only a slight reduction in the water supply is necessary until flowering is over.

The hybrids cannot be so sharply separated, for some are hybrids between the two groups or between parents which behave differently with respect to their period of growth and flowering. For example Lælia purpurata and L. crispa begin to grow in the autumn months, completing their growths early and then flowering almost without resting. When these are hybridised with Cattleyas that behave differently the resulting hybrids are either intermediate or tend to behave like one or the other parent. But it is a safe guide to treat them in the same way as the parent they most resemble.

With regard to resting generally it should be borne in mind that when the roots are not active very little moisture is being drawn from the compost, except by evaporation, and this again depends upon the time of year and the amount of fire heat necessary. Too much water at this period is both injurious to the roots and destructive to the compost, and a judicious use of the sprayer between the pots helps to preserve the necessary amount of moisture, and renders less direct watering necessary. A pretty safe guide when the plants are absolutely at rest is to give only enough water to keep the bulbs plump and prevent shrivelling, and it is remarkable how little water is required if a proper amount of atmospheric moisture is maintained.

Another way in which the well-being of the plants may be secured is to move the plants about, placing those in active growth in the warmest and lightest positions in the house, and shifting them to cooler positions when resting.

ERIA SONKARIS.—A distinct and striking Eria of the Eriura group, received from the Singapore Botanic Garden, and which is said to have been collected in Borneo, has just flowered at Kew, and apparently belongs to E. sonkaris, Rchb. f., a species which was described by Reichenbach in 1857 (*Bomplandia*, v. p. 55), from materials collected by Zollinger on Mt. Sonkar in the Malayan island of Sumbawa, east of Lombok. The Lindley Herbarium contains a single leaf, a small piece of the inflorescence, and a sketch of the lip, these having been sent by Reichenbach. It was said to be allied to E. abbreviata, Lindl., an imperfectly known Javan species. There is also a dried specimen of E. sonkaris at Kew, sent by Mr. J. J. Smith as having been cultivated in the Bogor Garden. A dried specimen from Mr. H. N. Ridley, collected at Pontianak, Borneo, also appears to be identical. The Kew plant has erect stems, over a foot high, with six or seven lanceolate-oblong coriaceous leaves, about six inches long by 1¼ broad, and dense erect spikes six or seven inches long. The pedicels and back of the segments are woolly. The flowers are light yellow, and the five-lobed lip has a few light reddish streaks on the side lobes.—R.A.R.

MANURIAL AID TO ORCHIDS.

IN reference to the article at page 222 on Manurial Aid to Orchids, I have no hesitation in recommending the "simple life" method of cultivation. I have seen articles wherein such things as a teaspoonful of guano and other crude artificial fertilisers have been recommended to be added to the compost of Orchids, and one can only assume that the writers of such articles have a very hazy idea of the requirements of these fascinating plants. I carried out a series of experiments extending over three years, adopting various methods of manuring Orchids, and find that, no matter how carefully one may work, and how weak the applications may be, the results are not at all satisfactory.

In regard to your correspondent's suggestion of damping with weak cow-manure water, this is equally unsatisfactory. The roots, though abundantly made, are inclined to be soft and very subject to a bacteriological disease, and the growths produced have been large and very often flowerless and inclined to "spot." Furthermore, a few days after the application of cow-manure water the osmunda fibre in almost every pot in the house is permeated, and afterwards choked up, by the mycelium of various fungi (some of which I have noticed are not altogether saprophytic in their mode of existence), causing a speedy disintegration of the compost.

I have found a good natural stimulant in the shape of *freshly fallen* rain-water applied to the roots of the plants, due, no doubt, to the nitrogen contained, which is lost in storage. I take care to use rain-water only to the roots of plants, and, in times of plenty, for wetting the floor and staging of the house.

I am sure also that with subjects such as Calanthes, Thunias, Zygopetalums, &c., better flowers are produced without the aid of manure. The latter I find grow very well indeed in a pure, strong adhesive loam. Contrary to expectation, they will take any amount of water, producing very fine bulbs and foliage and flowering very freely.

As a last word, let me say that I sincerely hope we are not going to commence undermining the constitution of our beautiful Orchids in the same way that our hardy plants have been treated in the past. Take the sweet pea as an instance, can anyone claim that this has not degenerated to an extent almost to be practically impossible of cultivation, owing to the fads and fancies of the so-called sweet-pea "experts!"

Hounslow. HENRY R. STERRETT.

[We favour the rain-water theory, but at times a good artificial substitute would be useful. And the question is, Have we one?—ED.]

CATTLEYA SYBIL AND ITS VARIETIES.

THE annexed illustration shows a remarkable series of hybrids raised by Messrs. Hassall & Co., Southgate, whose history is given in the ollowing note. Messrs. Hassall write: "We recently staged at the Royal

Fig. 31. CATTLEYA SYBIL AND ITS VARIETIES.

Horticultural Hall a new Cattleya hybrid of our own raising, which we named C. Sybil, the parentage of which is C. Dowiana aurea × C. iridescens. The parentage of C. iridescens, which is also a hybrid of our own raising, is C. bicolor × C. Eldorado. The plant staged by us was the first seedling to flower, but we now have seven plants in bloom, all produced from the

same seed pod, and we are surprised to find such a wonderful variation in form and colouring. We think that you will be interested to see the flowers, which we are sending, and trust they will reach you safely. So far the plants have carried from one to five flowers. It is now three years and four months since the seed was sown. All the plants of which we send you the flowers are one-leaved. But, taking the batch as a whole, about twenty-five per cent. are two-leaved on the last bulb. Last year when the plants were smaller, only about 5 per cent. were two-leaved. As far as we have been able to judge, the bulbs and flowers do not agree. We have several plants now in bloom, which have bicolor-shaped flowers, but the plants are absolutely of the one-leaved type, but there are two others which are bicolor plants and have also bicolor flowers. And one plant has the full round lip and two leaved-bulbs. The greater percentage of the flowers have so far been of the C. bicolor shape."

The flowers arrived in good condition, and the opportunity was taken to secure a photograph, which is here reproduced. The variation in form is well shown, and the details of colour are given below. It will be noticed that three of the flowers have the large entire lip and characteristic shape of the C. labiata section, while the other four (those in the centre row and the lower flower on the right) are most like C. bicolor, all having, however, the very short side lobes seen in C. Iris, C. iridescens, and other primary hybrids of C. bicolor. The original C. Sybil was exhibited on June 3rd last, and is recorded as most like the C. Dowiana parent, and having bronzy rose sepals and petals and a ruby purple lip with a yellow base (see page 215). For the purpose of description we number the flowers from 1 to 7, beginning at the left of the top row, and continuing the other two rows in the same order.

No. 1 has quite the characteristic shape of C. Dowiana aurea, with relatively shorter and broader petals and lip. The sepals and petals are bright lilac-rose, and the lip carmine, with radiating reddish lines on the orange yellow throat.

No. 2 has more acute and spreading petals, these and the sepals being bright rose, and the lip very dark velvety crimson, with a more uniformly deep reddish orange throat.

No. 3 much recalls C. Iris in shape, and has light salmon yellow sepals and petals, the front lobe of the lip very broad, purple-crimson, and the small side lobes yellow tinged with salmon, with a reddish tinge on the isthmus.

No. 4 has more spreading petals, these and the sepals being deep golden yellow, and a more elongated lip, the front lobe of which is deep velvety crimson, shading off to purple, with a narrow pale yellow margin, and the side lobes buff yellow, with red suffusion inside and on the isthmus.

No. 5 is rather smaller, with salmon yellow sepals and petals, the side

lobes of the lip yellow, the isthmus deep chrome yellow, and the front lobe crimson shading to rose.

No. 6 approaches no. 1 in shape, and has pale lilac rose sepals and petals, and an entire lip, with very large yellow throat, without red veining, and a broad dark purple-crimson margin, narrowing off at the sides.

No. 7 approaches 5 in shape, but has more spreading sepals, these and the petals being lilac-purple, while the lip has rose-coloured side lobes, a dull yellow isthmus, and an intense crimson-purple front lobe.

It will be noticed that the yellows in the figure generally come out darker than the purples, but this is a well-known difficulty in photographing colours, unless a yellow screen and an isochromatic plate are used.

This remarkable range of variation recalls the five secondary hybrid Odontiodas raised by Messrs. Charlesworth & Co., which were described at pp. 106, 107 of our April issue, though we were not able to illustrate them graphically by photographs. Of course the phenomenon is nothing new, for it was observed and recorded in the case of Læliocattleya fausta, the earliest secondary hybrid Orchid raised by hand, some of which Mr. Seden remarked most resembled their grandparents (see *O.R.*, xviii. p. 11). It is to-day a commonplace of hybridisation, and it stands in the strongest contrast with the comparative uniformity seen among primary hybrids. It is, in fact, a phase of reversion, and illustrates well what has been termed the "permanence of specific character" in organisms.

Species, as is well known, reproduce themselves true from seed, and the reason is because the pollen cells and embryo cells, from the union of which the new generation arises, are alike, hence no new and disturbing element is introduced. Hybridisation consists in the union of the unlike, the pollen cells of the male parent having different specific characters from those of the female, and the amount of difference depends on the degree of affinity between the parents. A hybrid combines two distinct ancestries, and consequently contains diverse elements, which seldom form a perfect blend. There is usually more or less incompatability, resulting in a mosaic structure, in which the indvidual cells are not homogeneous. When such a hybrid forms its reproductive cells, pollen and ovules, the same diversity obtains, hence the polymorphism seen among secondary hybrids. The one is the direct result of the other.

We now come to the well-known property of organisms to produce their own kind, which is summed up in the phrase, "like produces like," and, as hybrids are seen to form an exception, we are led to enquire as to what are the conditions under which the reproductive cells obtain their own distinctive qualities. We cannot go into the mysteries of ordinary cell formation, suffice it to say that by a complicated process the nucleus of the cell divides, giving rise to two exactly similar daughter nuclei, which

originate new cells, and that each nucleus contains a definite number of bodies, called chromosomes, which are believed to be the bearers of hereditary qualities. The particular kind of division seen in reproductive cells takes the form of halving the number of chromosomes, and this is technically known as the reduction division, and is accompanied by the peculiar property that these reduced cells are incapable of proceeding further until after a sexual process has taken place. These specialised cells are of two kinds, male and female, and occupy a different position with regard to the parent organism, but they are identical in their origin and method of development, and contain the same number of chromosomes. Their union by the sexual process restores the original number of chromosomes, and gives the stimulus to further development and the production of a new individual.

This new individual develops in accordance with the characters of the two reproductive cells which unite to give it birth, but it is in the earlier reduction division that the distribution of these characters among the individual reproductive cells takes place. This gives us an insight into the different behaviour of species and hybrids with respect to their offspring. The mosaic character, so far as it exists, prevents uniformity in the composition of the reproductive cells. It is due to incompatability between characters of diverse origin, and results in the diversity seen among secondary hybrids from the same seed pod. And it is not universal, for some hybrids reproduce themselves true from seed. In such cases, to use the language of Mendel, the differences are "*entirely and permanently accommodated together*" (the italics are his). The compromise, which is always necessary in the union of diverse elements and often only temporary, is here complete and permanent. Herein lies the difference between mosaic and blendid inheritance, and the measure of the difference is incompatability.

Blended inheritance results in intermediate hybrids, or in characters that are intermediate between those of their parents. Mosaic inheritance is common in a mixed population, such as that created by the hybridist, and it was the peculiar behaviour of hybrids that led to Mendel's original experiments, as may be seen by an extract from the introduction to his celebrated paper: "The striking regularity with which the same hybrid forms always reappeared whenever fertilisation took place between the same species induced further experiments to be undertaken, the object of which was to follow up the developments of the hybrids in their progeny. To this object numerous careful observers, such as Kölreuter, Gärtner, Herbert, Lecoq, Wichura, and others, have devoted a part of their lives with inexhaustible perseverance. . . . That, so far, no generally applicable law governing the formation and development of hybrids has

been successfully formulated can hardly be wondered at by anyone who is acquainted with the extent of the task, and can appreciate the difficulties with which experiments of this class have to contend."

We now return to the forms of Cattleya Sybil seen in our illustration, which contain the qualities of three distinct species. The mother, C. Dowiana, is a pure species, hence the embryo cells from which they were derived were uniform in character, and the diversity must have come from the pollen cells of the other parent, C. iridescens, in which C. bicolor and C. Eldorado are combined. C. Eldorado belongs to the same section as C. Dowiana, and hence may be said to possesses many similar though not identical qualities. The two agree in having clavate pseudobulbs with a single erect leaf, and an entire lip with large convolute side lobes (as in figs. 1, 2, and 6), but they differ in colour and in numerous other small details. C. bicolor, on the other hand, has slender elongated pseudobulbs with two spreading leaves, and a lip entirely destitute of side lobes, and hence has many different qualities from both. It may be said to have broken away from the main Cattleya stem at a much earlier period. Figures 3, 4, 5, and 7 approach this grandparent in general character, but differ in having small auriculate side lobes, in fact the reversion, as in the case of other secondary hybrids of C. bicolor, is not complete. Blending is equally obvious as regards colour, and in scarcely any case is reversion complete, though no. 4 almost reproduces the colour of C. Dowiana in the sepals and petals, but not in the lip.

In short, of unequal blending and quantitative differences in the factors there is plenty of evidence, as is invariably the case, and it illustrates how new characters arise by crossing, and give increased facilities for selection and improvement, which is the *raison d'étre* of all hybridisation as practised in gardens. R.A.R.

ONCIDIUM TENUE.—Several of the Central American Oncidiums seem to be very imperfectly known. Oncidium tenue flowered in the garden of the Horticultural Society as long ago as November, 1847, and was described and figured by Lindley (*Journ. Hort. Soc.*, iii. pp. 76, 77), but since then it seems to have been almost lost sight of. Now, however, a plant has flowered in the Kew Collection, and although there is no record of its origin it agrees with the original specimen preserved in Lindley's Herbarium. This original plant is said to have been received by the Horticultural Society from Hartweg, in February, 1841. Lindley remarked that the species was remarkable for its tbin pseudobulbs, and that the flowers were not unlike those of Oncidium Suttonii in size and colour, being yellow, with brown bars on the sepals and petals, and that it was distinguished from O. suave by its broader leaves and acutely triangular column-wings.—R.A.R.

NOVELTIES.

DESCRIPTIONS of another Decade of New Orchids have appeared in the *Kew Bulletin* since our last notes were given (*O.R.*, xxi. pp. 250-252), of which the following nine are in cultivation :—

MEGACLINIUM UGANDÆ, Rolfe.—Flowered in the Royal Botanic Garden, Glasnevin, in March, 1912, and again a year later. It is allied to M. endotrachys, Kränzl., but the scape is shorter and the lateral sepals more acuminate. The rachis is heavily dotted and marbled with purple-brown on a light green ground, and the sepals are of much the same colour outside but more green within. The petals are light green, and the lip dull purple. The species was obtained from Mr. J. O'Brien as a native of Uganda.—*Kew Bulletin*, 1913, p. 338.

EULOPHIA WATKINSONII, Rolfe.—An ally of E. hians, Spreng., sent from Ermelo by Mr. Watkinson, of the Transvaal Forest Department, and flowered at Kew in February, 1911. It has bright yellow flowers, with a little brown outside the sepals.—*l.c.*, p. 339.

EULOPHIA UGANDÆ, Rolfe.—An ally of E. latifolia, Rolfe, sent from the Mabira forest, Uganda, by Mr. E. Brown, and flowered in the collection of the late Sir Trevor Lawrence, Bart., Burford, Dorking, in March, 1913. The flowers are borne in a compact panicle, and are white with a few purple streaks on the lip and face of the column. Its climbing habit is remarkable, the new bulbs being regularly produced above the old one and sending down a strong root, thus recalling a mangrove in habit.—*l.c.*, p. 339.

POLYSTACHYA CORIACEA, Rolfe.—A native of British Central Africa which flowered in the collection of Mr. James Bush, of Cardiff, in March, 1913. It is allied to P. golungensis, Rchb. f., and has deep yellow flowers. —*l.c.*, p. 340.

XYLOBIUM ELATUM, Rolfe.—A Peruvian species, introduced by Messrs. Sander & Sons, through their collector L. Forget, and flowered in their Bruges Establishment in May, 1913. It is allied to X. scabilingue, Rolfe, but is characterised by its tall habit, the scape being as much as three feet high, and the leaves correspondingly large. The flowers are very numerous, dull pale green, heavily marbled with brown on the back of the segments, and the very prominent tubercles on the lip are dark brown.—*l.c.*, p. 341.

XYLOBIUM ECUADORENSE, Rolfe.—Flowered in the collection of Mrs. Lipscomb, Wilton Grove, Wimbledon, the plant having been sent from Ecuador by her son, Mr. Lancelot Lipscomb, in 1911. It was collected at Naranajapata, about 75 miles from the coast. It is allied to X. foveatum, Nichols., and has flowers uniformly light yellow in colour.—*l.c.*, p. 341.

TRICHOCENTRUM PANAMENSE, Rolfe.—Flowered in the collection of

Mrs. Lipscomb, Wilton Grove, Wimbledon, in November, 1911. It was received some two years previously from Mr. L. Lipscomb, who found it on bush-covered hills on the Panama Canal. It is allied to T. capsicastrum, Linden & Rchb. f., but has a shorter scape, and the spur is very short, dilated, and divided at the apex into four short lobes, an unusual character. The flowers are light green, with a white lip, at the base of which is a red-purple blotch.—*l.c.*, p. 341.

SIGMATOSTALIX BICORNUTA, Rolfe.—Introduced from Peru by Messrs. Sander & Sons, St. Albans, through their collector, L. Forget, and flowered in the Royal Botanic Garden, Glasnevin, in January, 1912, It is allied to S. graminea, Rchb. f., and has yellow flowers, with a deep, purple-red stripe on the dorsal sepal and petals. The name refers to a pair of fleshy conical horns on the petals, a quite unusual character.—*l.c.*, p. 342.

SACCOLABIUM GLOMERATUM, Rolfe.—A Bornean species which flowered in the collection of the Hon. N. C. Rothschild, Ashton Wold, Oundle, in October, 1913. It is allied to S. penangianum, Hook. f., but has short, congested racemes. The flowers are yellow, spotted with brownish red on the sepals and petals, and striped with similar colour on the side lobes of the lip.—*l.c.*, p. 342.

A forty-second Decade has since appeared, of which the five following are in cultivation :—

PLEUROTHALLIS LANKESTERI, Rolfe.—A curious little plant sent from Cachi, Costa Rica, by Mr. E. Lankester, and flowered at Kew in June, 1914. It belongs to the group Apodæ cæspitosæ, and is allied to P. myriantha, Lehm. & Kränzl. The flowers are deep yellow, with a dark purple lip and column. It is very inconspicuous, owing to the fact that the small flowers are borne in fascicles below the leaves.—*Kew Bulletin*, 1914, p. 210.

CŒLOGYNE ANNAMENSIS, Rolfe.—An ally of C. brunnea, Lindl., which flowered in the Royal Botanic Garden, Glasnevin, in November, 1913, and is said to have been introduced from Annam by Messrs. Sander & Sons. The sepals and petals are pale buff yellow, and the lip rather darker, with orange-brown markings.—*l.c.*, p. 211.

MAXILLARIA FLETCHERIANA, Rolfe.—A striking Peruvian species, introduced by Messrs. Sander & Sons, through their collector, Mr. L. Forget. It flowered in April, 1913, when it received an Award of Merit from the R.H.S. The flowers are large, white, irregularly lined with purple, and the front and crest of the lip yellow.—*l.c.*, p. 213.

RENANTHERA PULCHELLA, Rolfe.—A very pretty little plant, which flowered in the establishment of MM. A. A. Peeters & Cie., Brussels, in August, 1913. It is said to have come as a single plant in an importation

of R. Imschootiana, but the flowers are only half as large, and different in structure. The colour is yellow, with the side lobes and upper half of the lip crimson.—*l.c.*, p. 214. [The species received an Award of Merit at the Holland House Show.—See p. 213 of our July issue.]

ANGRÆCUM BIRRIMENSE, Rolfe.—An ally of A. Eichlerianum, Kränzl., described from a dried specimen sent from the Birrim District, on the Gold Coast, by Mr. A. C. Miles. A living plant was also sent which is now in the Kew collection.—*l.c.*, p. 214.

DENDROBIUM PAPILIO.—A flower of a very striking Dendrobium has been sent from the collection of E. D. Bostock, Esq., Stone, Staff. It was purchased some years ago out of an importation as D. Papilio, and is evidently the true Philippine species of that name. D. Papilio was described by M. Loher about seventeen years ago (*Gard. Chron.*, 1897, i. p. 416), as follows: "A charming species of the crumenatum group. Its large, solitary, pale rose flowers hang down from their thin grass-like stems in great profusion, resembling butterflies suspended in the air. The sepals and petals of the nearly two-inch wide flowers are ovate, and the broad undulate lip is long stipitate, with a few purple veins. The fragrant flowers last only one or two days." The only dried specimen at Kew is an imported plant that died on the way home, and consequently is without flowers, but it is probable that Mr. Bostock's plant came from an authentic source, as the flower agrees well with the technical description, except that the ground colour is white, with a very faint shade of blush, which contrasts effectively with the purple veining on the lip. This may indicate variation. The species, however, belongs to the Section Pedilonum. A well-grown plant would be a striking object. R.A.R.

BULBOPHYLLUM VITIENSE.—Geographical names are often convenient in the case of large genera, but a good deal of caution is necessary in their application to garden plants. Over twenty years ago a Bulbophyllum, said to have been received from the Botanical Station, Fiji, was described under the name of B. vitiense (Rolfe in *Kew Bulletin*, 1893, p. 5). It was said to be very distinct from B. rostriceps, Rchb. f., the only other species then known from Fiji, but its exact affinity was not made out. Over a year later a Liberian Bulbophyllum that flowered at the Royal Botanic Garden, Glasnevin, was identified as B. cocoinum, Lindl., a species then lost sight of, and later on it flowered at Kew among Orchids received from Accra. B. vitiense could not be distinguished from them, and it became evident that some mistake had been made in the Fiji habitat, and that the name must be cancelled. Both plants are again in bloom at Kew, and are certainly forms of one. R.A.R.

GRAMMANGIS ELLISII.

THE annexed figure represents, on a much reduced scale, a plant of this striking Madagascar Orchid, which flowered at Kew some time ago. The species is one of the introductions of the Rev. W. Ellis, and was figured and described in the *Botanical Magazine* (t. 5179) under the name of Grammatophyllum Ellisii, Lindl., in 1860, though Reichenbach afterwards

Fig. 32. GRAMMANGIS ELLISII.

made a new genus of it, as Grammangis Ellisii. It flowered in Mr. Ellis' collection at Hoddesdon in August, 1859, when the discoverer wrote to Lindley as follows: "Among the plants which I brought from Madagascar was a large-bulbed plant exactly like Anguloa Clowesii, only the bulbs were quare instead of round. I found it growing on a branch of a tree abont

the size of a man's leg, and stretched over a stream at about 25 feet above the water." He then went on to describe the bulbs as 7 to 8 inches long by 1½ inches broad, surmounted by a tuft of five or six leaves somewhat resembling those of Angræcum sesquipedale. He brought the plant home, and it grew well, throwing up with the young growth a spike about 2 feet long, and bearing between 30 and 40 flowers. This was sent to Lindley, together with a painting by Mrs. Ellis, from which the illustration in the *Botanical Magazine* was prepared.

For some years it remained very rare, in fact in 1878 Reichenbach remarked that until then the known specimens numbered scarcely half-a-dozen, so that the plant was little known in the horticultural world. At this time, however, a fine lot had been introduced by M. Leon Humblot (*Gard. Chron.*, 1878, ii. p. 333).

It was on a plant from this importation, which flowered with Mr. John Day, that Reichenbach based his var. Dayanum (*Gard. Chron.*, 1880, ii. p. 326), which he described as a surprising and totally unexpected novelty, and might at first be regarded as a new species. The difference largely relied on by Reichenbach was the absence of the transverse bars shown on the sepals in the *Botanical Magazine* figure. But they are also absent from the original painting in Lindley's Herbarium, and we think they must have been introduced in making up the figure, for we have never seen them in any living plant. Fortunately, on its flowering in September, 1878, the variety was painted by Mr. Day (*Orch. Draw.*, xxvii. t. 9), and we cannot find any essential difference from the type, so that the variety may be abolished.

The plant is still rare, though more examples have been imported by Messrs. Charlesworth & Co., and it was to one of these that a Cultural Commendation was awarded by the R.H.S. at the Holland House Show in 1913. The plant bore two racemes and an aggregate of 64 flowers (*O.R.*, xxi. p. 246).

The general character of the plant is shown in the figure, but owing to the amount of reduction the details of the flowers are not as clear as could be wished. The colour of the sepals is yellow with sepia coloured markings, and the ground colour of the petals and lip nearly white, the former with a brown zone at the apex and the latter with purple lines and some yellow on the disc.

It is a rather refractory subject, and succeeds best in a moderately shady position in the Warm house. Baskets or pots may be used, with ample drainage, and a good fibrous compost, finishing off with a surfacing of sphagnum moss. It requires a liberal supply of water at the roots during the growing season, but as soon as the growths are matured it should be given a decided rest.

CALENDAR OF OPERATIONS FOR SEPTEMBER.

By T. W. BRISCOE, Late Foreman of Messrs. Veitch's Hybridising Department.

WITH the arrival of September we begin to think of shorter days and less sunshine, while the Orchid grower will try to make up the deficiency to some extent by removing the permanent shading, and by reducing the interval of letting down and rolling up the blinds. Some shade will still be necessary, especially on the Cool or Odontoglossum houses, but discretion and moderation must be the keynotes, or much damage may be done.

VENTILATION, always an importaut factor in Orchid culture, must receive due attention, and air should be admitted on all favourable occasions. An inch or so may still be left on throughout the night, and it is a bad policy to try and economise fuel by closing the ventilators early and keeping them shut until the morning.

ATMOSPHERIC MOISTURE must be reduced in every division, and at this time of the year it is better to err on the dry side, as the outside atmosphere is often heavily charged with moisture, and heavy dews are the general rule rather than the exception.

WATERING AND SPRAYING must both be carried out with due regard to the weather, and the condition of the plants, while the compost used also makes a great difference in the amount of moisture required. The growth of the plants will need to be studied when giving water, in fact success can only be obtained by treating them individually. Spraying the plants heavily overhead will now be a somewhat dangerous practice, and the amateur must be on his guard when using the syringe for this purpose. Any spraying ought to be done sufficiently early in the day for the foliage to dry before night, or water will be found on the foliage next morning, a condition that must be avoided.

TEMPERATURES.—Sudden falls in the temperatures may now be expected, unless the fires are kept clean and ready for use in case of emergency, but care must be taken, or the pipes will get excessively hot, which is most harmful to the inmates, while insect pests will increase rapidly under such conditions.

INSECT PESTS.—An opportunity will now occur to look over the collection, and examine each specimen for scale insects, &c. Dirty pots can be washed and everything made clean before restaging. When rearranging the plants the evil of overcrowding should be obviated as much as possible. I know it is often difficult to find adequate accommodation for every plant that one is expected to grow, but the Cattleyas with their many hybrids should be less crowded than Cypripediums and

similar Orchids, as light and air are important factors in ripening the growths.

CATTLEYAS.—Among the Cattleyas that flower in the early and late autumn are C. Eldorado, C. Loddigesii, C. Leopoldii, C. granulosa, C. bicolor, and the beautiful C. Dowiana aurea. A quantity of the latter is often met with in establishments largely devoted to Orchids, where a succession of flower can be maintained for several weeks, which is a great advantage to the hybridist. When the blooms are removed the plants will remain dormant through the winter, and must not be overwatered, although any undue shrivelling of the pseudobulbs should be guarded against. Examples bearing seed capsules ought to be watered more freely, and suspended in a light position a few feet from the glass.

LÆLIOCATTLEYAS.—These give a good account of themselves throughout the year, and especially from now onwards. Many will be pushing up their spikes, others will be completing their season's growth, and a few may require repotting. When this operation is finished, they can be placed at the warmest end of the house, and if they are carefully watered no harm will accrue. Shade will only be needed through the middle of the day, as dense and excessive shading has detrimental effect upon all the Cattleya tribe, particularly just prior to the winter months.

MASDEVALLIAS.—In the February issue I referred to this quaint and interesting genus, and suggested that any not in a condition for repotting at that date should be left over until the present month. The winter-flowering kinds, of which the chaste M. tovarensis may be cited as an example, ought not to be disturbed at this season, and the same remark applies to the Chimæra group, unless the compost is in a sour condition, when it is advisable to renew it at once irrespective of rules. Then we have the brilliantly coloured and strong-growing group, such as M. Veitchiana, coccinea with its numerous varieties, and ignea, which can safely be repotted where the plants are pot-bound. Few Orchids respond more readily to generous treatment than these Masdevallias, and if carefully watered for the first two months or so they will soon take possession of the new compost. Where a house or division is not set apart for them, the warmest end of the Cool house should be chosen, preferably the shaded side. The base of the plant must not be elevated above the rim of the pot, and at no time ought they to suffer from dryness at the root. They are subject to attacks from thrips, and the under-surface of the leaves should be examined periodically. I have heard that a mite (similar to the Begonia mite) causes disfigurement of the foliage, but cannot vouch for the accuracy of this statement. Have readers any knowledge of this pest?

PLEIONES.—Most of the species, such as P. maculata, P. præcox, and P. lagenaria will have completed their pseudobulbs, and the leaves will gradually decay. Directly signs of maturity are noticed they may be fully

exposed to the light, and the water supply can be gradually reduced, but not entirely withheld, for Pleiones are like Disas, never really dormant, although growth is very slow through the winter months. When the pseudobulbs are depleted of the foliage growth will commence, and the short scapes of crocus-like flowers will emerge from the base of the bulbs. At this stage the roots ought to be kept moderately dry, and if the plants are removed to a house where the atmosphere is less humid, the blooms will remain in full beauty for a much longer period. P. humilis will continue to grow for some weeks yet, and must be treated accordingly. It and one or two others flower in the spring.

HABENARIAS.—These charming Orchids are well worth growing, the most critical part of their culture being the resting season. They are deciduous, and a decided rest is necessary, but it is advisable to examine the pots occasionally to ascertain whether the tubers are shrivelling from lack of moisture, or a drip is causing the soil to get into a wet state. After the flowers are past, the stems gradually decay, water is given less frequently, and then practically discontinued till the spring, when the tubers awaken from their slumbers.

CHYSIS.—Although a small genus and one belonging to the past, a few representatives are still grown in some collections, and to secure the best results it is essential that the pseudobulbs should be properly ripened. To this end they should be placed in the warmest house if growth is at all backward, otherwise the Cattleya division will suit them until the foliage changes colour. When at rest they may be suspended in a light position in a cooler house, or among the Dendrobiums, and only afforded sufficient moisture to keep the bulbs in a plump state.

LÆLIA ANCEPS and varieties, and any Cypripediums that are pushing up their flower scapes, should be neatly staked to prevent them from twisting and injury. The former must receive plenty of light and ventilation on all favourable occasions.

ONCIDIUMS.—O. tigrinum, O. varicosum, and the fine variety Rogersii will soon be flowering, and here it is advisable to carefully stake the spikes before they are far advanced, while a piece of cotton wool placed around the base of each spike will retard the progress of slugs, which are usually very active as the nights become longer and dark. Vanda cœrulea will also require similar attention.

ODONTOGLOSSUMS.—The repotting of the Colombian section should be finished at the earliest possible date, and until they are re-established the surroundings must be kept moist and the ventilators fairly close. The pretty O. Rossii will be growing freely, and until the pseudobulbs are developed the plants must be afforded ample moisture at the base. After flowering a partial rest is allowed, but if kept without water for any great

length of time the small bulbs will show signs of distress. Weak examples ought not to be permitted to produce a flower scape.

DENDROBIUMS.—Many of those belonging to the D. nobile section will be completing their season's growth, and will in consequence need water less frequently than hitherto, but on no account ought the bulbs to shrivel. Where a house is devoted to their culture the temperature can be lowered to 50° or 55° Fahr., if the atmosphere is kept dry. This will make a grand house for resting other plants, such as Thunias, Catasetums, Mormodes, and several others that will occur to the grower. Plants that may still be growing can be taken to the warmest division until their growth is finished. D. Dearei, D. atroviolaceum, and others of similar habit must be rested in the Cattleya house, and here the indispensable D. Phalænopsis and D. formosum giganteum may remain during their flowering period. No shade will be needed on the Dendrobium house, as it is essential for their stems to be thoroughly ripened.

LÆLIA PUMILA AND VARIETIES.—These dwarf compact little Orchids are highly prized by some for buttonholes, the somewhat small flowers being most suitable for this purpose. They should be cultivated in shallow pans, which can be suspended in the Intermediate house. The usual rooting medium may be used, and any repotting takes place when roots are seen emerging from the base of the current pseudobulb. The flowers appear in the autumn, and the plants must never get really dry.

HABENARIA PROCERA.—A clump of a fine Tropical African Habenaria, sent to Kew by Mr. A. C. Miles, Curator of the Agricultural Station on the Gold Coast, is now in bloom, and proves to belong to H. procera, Lindl., a very imperfectly known species. It was originally collected in Sierra Leone by Afzelius, and described by Swartz under the name of Orchis procera, being transferred to Habenaria by Lindley (*Gen. & Sp. Oreh.*, p. 318). Afterwards an Orchid, which had been received from Sierra Leone by Messrs. Loddiges, flowered in their establishment at Hackney, and was identified by Lindley, and flowered in the *Botanical Register* (t. 1858). A copy of this plate is all that is preserved in Lindley's Herbarium, and nothing further was known about the species when the *Flora of Tropical Africa* was published. The Kew clump is now producing three fine racemes. The plants are about eighteen inches high, and bear six or seven, lanceolate-oblong, very undulate leaves on the lower part of the stem, and the racemes bear from about twelve to thirty white flowers, with the tips of the sepals and the apex of the spur green. The lip is three-lobed, with filiform side lobes, and the spurs are abont four inches long, pendulous, and slightly thickened at the apex. It is a very graceful species, and its reappearance in cultivation is interesting.

R.A.R.

AN OLD CATALOGUE.

AN interesting glimpse of Orchid culture in the past is afforded by some of the old Catalogues, and we may illustrate our remarks by one issued by M. J. Linden as long ago as 1853. It is entitled "Prix Courant de J. Linden a Bruxelles. Printemps, Été et Automne de 1853."

Over seven hundred species and varieties of exotic Orchids are enumerated, and in most cases the native country is given. That it differs greatly from modern Catalogues goes without saying, for besides the entire absence of hybrids, many species now familiar in collections are missing, including the popular Odontoglossum crispum, while there are many others that are very rarely met with in the present day. The maximum price was 200 francs, at which Vanda suavis and Uropedium Lindenii were offered, Vanda tricolor and V. insignis were 100 francs each, and the beautiful V. cœrulea from 50 to 150 francs, while V. teres could be had from 20 to 40 francs. The Javan Phalænopsis grandiflora ranged from 100 to 150 francs, the latter figure being fixed for the Philippine P. rosea and the so-called P. amabilis, a name now known to be erroneous, and replaced by P. Aphrodite. These are the only three Phalænopses in the Catalogue. Other eastern Orchids appear to have sold well, for we find Saccolabium guttatum, S. præmorsum, and Blumei majus priced at 125 francs, while the typical S. Blumei and the Bornean S. retusum were 25 francs cheaper.

In point of numbers, Epidendrum heads the list with 49 species, followed by Oncidium with 48, Dendrobium with 46, Odontoglossum with 27, and Cattleya with 22. Odontoglossum Pescatorei is priced at 150 francs, followed by O. ramosissium and O. nævium at 100 francs, while 75 to 100 francs was asked, and possibly obtained, for O. auropurpureum, a species probably not now in cultivation. Cattleya Holfordii, now known to be a synonym of C. luteola, was priced at 100 francs, followed by C. Aclandiæ at 40 to 80 francs, while C. Harrisoniana was as low as 15 francs. Cypripedium insigne could be had as low as 2 francs each, while 40 was asked for C. javanicum, a species now rarely seen. And hybridists will be interested to know that Brassavola Digbyana was then offered at from 50 to 100 francs, for there was a later period when the stock could have been cleared out several times over at the price.

Of course, the majority of the plants stood at much smaller figures. For example Dendrobium nobile was priced at from 5 to 25 francs, and selections at the choice of the establishment are offered at 12 for 60 francs, 25 for 150, 50 for 500, and 100 for 1500, or an average of 6 to 15 francs each, it being explained that the larger collections contained more of the higher priced species. And rarity then, as now would be one of the determining

factors. For example, Sobralia Ruckeri was offered at 125 francs, and S. macrantha from 10 to 25. A good many things are included in the list which, like the latter, are still popular garden favourites, as Epidendrum vitellinum majus, offered at 40 to 75 francs.

A few names are unfamiliar, for example Oncidium Candelabrum, priced at 60 to 100 francs, but a reference to the 1855 Catalogue shows that the plant is Odontoglossum coronarium. Here we find Ada aurantiaca Lindl., offered as a new and remarkable novelty, near Bletia and Miltonia, with flowers like Epidendrum vitellinum in colour, at 50 to 75 francs each; Odontoglossum gloriosum, described as having flowers twice as large as O. nævium, and borne in a panicle of 30 or 40 together, at 100 to 200 francs, and O. triumphans, another striking novelty, at the same price. All three were from New Granda, where M. Linden then had a collector, and their introduction may almost be said to have commenced the epoch of what has been termed Cool Orchid growing.

These old catalogues afford a very interesting glimpse of what must have been the condition of our collections when Calanthe Dominyi, the first hybrid Orchid raised by hand, burst upon the scene, and initiated another revolution in Orchid culture.

EPIDENDRUM PENTOTIS.—When the history of this fine Epidendrum was given, about six years ago (*O.R.*, xvi. p. 189), a discrepancy in the habitat was pointed out, the locality originally recorded being Minas Geraes, Brazil, while that of E. fragrans var. megalanthum, now regarded as synonymous, was said to be Guatemala. The evidence of a dried native specimen is now available, for a plant collected at Santa Rosa, Guatemala, at about 1800 feet elevation, by J. Donnell Smith, and distributed under the name of E. fragrans, proves identical. It is n. 3499 of the collection, and confirms the habitat given by Lindley. This gives the additional synonym, E. fragrans, *J. D. Smith, Enum. Pl. Guat.*, vii. p. 39 (not of Swartz). Assuming the identification to be correct, and the evidence seems ample, the Brazilian habitat requires confirmation. The species has recently flowered well at Kew.—R.A.R.

EPIDENDRUM O'BRIENIANUM TRUE FROM SEED.—Since our note at page 108 was written an earlier record of Epidendrum O'Brienianum coming true from seed has been found, though the occurrence seems to have been accidental. Among Orchids that are occasionally cleistogamous, Messrs. James Veitch & Sons include Epidendrum O'Brienianum (*Man. Orch.*, x. p. 77), and add that "seedlings have been raised from the capsules so produced, and the resulting progenies have conformed strictly to the parent plants."—R.A.R.

RHYNCHOSTYLIS GUTTATA.

IT has long been evident that Reichenbach's reduction of all the forms of Rhynchostylis, with the exception of R. gurwalica, to forms of a single species, with a distribution from North India and Ceylon to Java and the Philippines, was too sweeping, and that a revision must some day be attempted. His inclusion of Saccolabium violaceum in the genus was a further extension that need not trouble us, as this plant does not agree in structure, but he subsequently described two additional species having the typical Rhynchostylis structure, under the names of Saccolabium littorale and S. Berkeleyi, which adds a further complication. How many of these

Fig. 33. RHYNCHOSTYLIS GUTTATA.

forms will ultimately prove distinct is uncertain, but there is one of them that has long been known in gardens as Saccolabium guttatum, Lindl., which Reichenbach himself at an earlier date called Rhynchostylis guttata (*Bonplandia*, 1854, p. 93). To it has been referred a plant which has just flowered in the collection of Lieut. Robert D. R. Troup, Wembdon, Bridgwater, and which he collected between the Pindari Glacier and Naina Tal, in the North-West Provinces of India. It quite agrees with the North-western plant which bears this name, and also with the form figured in the *Orchids of the Sikkim Himalaya* by King and Pantling, under the name of Rhynchostylis retusa, these authors following Reichenbach in referring all as forms of one very variable species. It may be interesting to

reproduce a figure of a fine specimen which flowered some years ago in the collection of Dr. R. T. Jessop, Roundway Mount, Leeds, and gained the First prize for a specimen Orchid at the Leeds Show in 1897. When thus grown the species is very handsome.

RHYNCHOSTYLIS RETUSA.—The mention of Rhynchostylis retusa would naturally recall a Javan plant, but on referring to the original description (*Blume, Bijdr.*, p. 286) we find it was based on Aërides retusum, Swartz, and this on the original Epidendrum retusum of Linnæus (*Sp. Plant.*, ed. l. p. 953). Linnæus himself based the species on an old figure in *Rheede's Hortus Malabaricus* (xii. p. l. t. l), bearing the name "Angeli maravara," this being a large drawing of a plant bearing two spikes of fruit, and two of flowers with the unmistakable Rhynchostylis structure, and thus we are able to fix Rhynchostylis retusa down to the South Indian plant, of which good dried specimens are known. A graphic account of this Malabar plant was given in an article by "J.L.," which appeared in *The Garden* in 1890 (xxxviii. p. 607), from which the following is condensed:—

In its original habitat of Malabar the species mostly affects the jungle and marshy banks of sluggishly-flowing rivers, thick with trees of low stature and thorny undergrowth, composed of Solanum ferox, spiny Acacias, and other wait-a-bit Thorns, where croak innumerable frogs, speaking eloquently of malaria, ague, and fever, and where crawls the deadly cobra, and where other reptiles and insects of strange appearance are abundant. In the midst of such surroundings, pendant from the branches of trees, may be seen the charming blooms of the Saccolabium, spreading a fragrance around which compels the explorer to linger in the locality, even at the risk of subsequent attacks of jungle fever. Curiously enough, the plants are never found in groups, but singly, with long distances between the individual plants. The altitude is about 2500 to 3000 feet. The plants come into flower during September and October, or immediately after the south-west monsoon rains cease, and from that date till the first spring showers fall, in March or April, these epiphytes enjoy a complete rest. They are throughout nearly the whole of this period of rest protected from the east winds which prevail for so many months, and they are under the influence of dense fogs during the night and early morning. During the prevalence of the south-west monsoon, which is their growing season, the temperature rarely falls below 70° Fahr., that is when the sky is cloudy and the rain is pouring in torrents, perhaps for three or four weeks at a time. From the end of October till the end of April, the season of rest, the thermometer frequently falls in the night and early morning to 48° Fahr., so that the range of temperature under which they live in Southern India is considerable.

ANGRÆCUMS IN MADAGASCAR.

SOME interesting details respecting Madagascar Orchids are given by the Rev. W. Ellis in his work entitled "Three Visits to Madagascar," published in 1858, and the following appears under the heading "Singular localities of Angræcums" (pp. 177-179), accompanied by a woodcut. Mr. Ellis was the discoverer of Angræcum Ellisii, a species which was named in his honour by Reichenbach.

Orchids were abundant, and often occupied positions in which the growers of these plants in England would little expect to find them, but in which they gave an indescribable singularity and charm to the landscape. The Limodorums were numerous in parts of the road, and formed quite a ball of interlaced roots at the base of the bulbs. A small species, resembling in habit and growth the Camarotis purpurea, but quite unknown to me, and bearing a vast profusion of white and sulphur-tinted flowers, often enlivened the sides of the road along which we passed. But the Angræcums, both A. superbum and A. sesquipedale, were the most abundant and beautiful. I noticed that they grew most plentifully on trees of thinnest foliage, and that the A. sesquipedale was seldom, if ever, seen on the ground, but grew high up amongst the branches, often throwing out long straggling stems terminating in a few small, and often apparently shrivelled leaves. The roots also partook of the same habit. They were seldom branched or spreading, but long, tough, and single, sometimes running down the branch or trunk of a tree, between the fissures in the rough bark, to the length of twelve or fifteen feet, and so tough and tenacious that it required considerable force to detach or break them. Many of them were in flower, and, notwithstanding the small, shrivelled appearance of the leaves, the flowers were large, and the yellow colour strongly marked. On more than one occasion I saw a splendid Angræcum sesquipedale growing on the trunk of a decaying or fallen tree, and sending its tough roots down the trunk to the moist parts of the vegetation on the ground. I found one decayed tree lying on the ground almost overgrown with grass and ferns, on the rotten trunk of which the A. sesquipedale was growing most luxuriantly. The roots which had penetrated the soft trunk of this dead tree were white and fleshy, while the leaves were longer and comparatively soft and green. There were neither flowers nor flower-stalks on any of the plants growing in the rich vegetable mould furnished by this old dead tree.

The habits of the A. superbum were quite different. Of these the fleshy roots formed a sort of network at the base of the bulb. During the journey I continually noticed both kinds growing not only on the branches of living trees, but very often high up on the bare barked trunks of the dead trees.

Sometimes in the angle formed by the junction of an arm with the trunk of a large naked tree, apparently without a fragment of bark adhering to the trunk, a bunch of moss, or a cluster of Orchids, or both mingled together, would be growing, apparently with great vigour, and often in full flower. More than one tall bare trunk, twelve or eighteen inches in diameter, and thirty feet high, stood surmounted, or surrounded, near its summit by a

Fig. 34. ANGRÆCUM SESQUIPEDALE.

(For the introduction of the remarkable Orchid, whose habitat is here described, we are indebted to the Rev. W. Ellis, missionary and historian of Madagascar, in whose garden at Hoddesdon it flowered, for the first time in Europe, in the spring of 1857.)

cluster of Angræcums, with their long, sword-shaped, fleshy leaves, or, what was more beautiful still, a fine specimen of some species of bird's-nest fern. The contrast between the white, shining, barkless trunk, and these verdant clusters of plants on the top, was sometimes very striking,

especially as the Orchids were often in flower, and by their growth altogether suggested the idea that by the decay of their own roots a receptacle was formed for the moisture or the rain by which the plant was nourished. This combination of life and death, growth and decay, presented one of the most singular amongst the many, to me, new and curious aspects of nature which my journey afforded.

THE AMATEUR'S COLLECTION.

By C. ALWYN HARRISON.

THIS month our attention is turned to preparing for the coming winter, by carefully going over each plant and thoroughly cleansing it, scrubbing staging, and generally seeing that everything is in order. Now that the sun is losing some of its power less shading will be needed; the liquid shading should be washed off the glass, for the blinds will henceforth afford all protection that is necessary. In re-staging the plants, place all that are in bud and in active growth at the warmest end of the house, reserving the cooler end for those in a state of repose.

Now that light and air are such vital adjuncts to success, each plant should be so placed that there is ample room for a free circulation of air, and so that the leading growth can easily be watched.

Watering and ventilation will now demand much care, and damping must be performed in the morning and evening, and, if bright weather still prevail, also at midday, whilst the plants will still gain much benefit by a spray with rain water over their leaves, especially about 5 p.m., before the blinds are raised.

The present season has been very suitable for plants of the Cattleya group, as we have had much sunny weather, and later on such varieties as C. labiata, C. Bowringiana, C. Trianæ and their hybrids should give a wealth of flower. Be careful to see that these are kept well supplied with water, to enable them to finish making up their bulbs. Such Cattleyas as C. gigas, C. aurea, and the wonderful C. Hardyana are now at rest, and should be given water with caution, as also Stanhopeas and other summer-flowering Orchids. From personal experience I find that damping the path once or twice a week with weak liquid manure water is very efficacious.

Dendrobiums are now rapidly finishing their bulbs, and, until quite completed, need an abundance of heat and moisture, but afterwards must be given a cooler rest, and for this a vinery is most effective. D. formosum, D. Dalhousieanum, and D. Phalænopsis do not, however, require this, and should be kept at all seasons in the warmest end of the Cattleya house, or they are likely to suffer.

ORCHIDS AT KEW.

SEVERAL interesting rarities have recently flowered at Kew, respecting which a few notes may be interesting. A plant of the Malayan Arachnanthe moschifera has produced a raceme of five flowers, which are yellowish green, barred with brown, and have been compared to some great spider in shape, a resemblance to which it owes its name of Spider Orchid. Another rarity is Stauropsis gigantea, which is bearing a spike of its very fleshy yellow flowers spotted with brown. Near by a number of plants of Phalænopsis Esmeralda are making a fine show. They were received some time ago, and are now becoming established. Cycnoches pentadactylon is this time bearing a female flower, which is green with some brown bars on the base of the segments, and the remarkable C. Egertonianum bears a raceme of the purple males. It is only occasionally that the green females are borne at the same time. Catasetum Darwinianum has again bloomed well, all the flowers being males, as has also been the case with several other species that have bloomed. The proportion of female flowers on cultivated plants hardly reaches five per cent., but it may be greater in their native homes, where the plants are probably more vigorous. Stanhopea ecornuta is rarely seen in collections, and several of the commoner species have bloomed well. The very distinct Cattleya elongata has produced a single flower, the plant not being very strong, but C. velutina and C. Grossii have flowered and bloomed well, and several of the commoner species, with Lælia crispa and Dayana, and numerous hybrids are at the present time producing a profusion of flowers. A very dainty little plant is the Bornean Liparis lacerata, a plant of which has produced two long racemes of its reddish orange flowers, with heavily fringed lips.

ODONTONIA MAGALI-SANDER VAR. XANTHOTES.—An inflorescence of a very charming little hybrid has been sent from the collection of O. O. Wrigley, Esq., Bridge Hall, Bury, by Mr. Rogers. It was obtained from Miltonia Warscewiczii xanthina crossed with the pollen of Odontoglossum armainvillierense xanthotes, and has well retained the albinism of both parents. A hybrid between the typical forms of M. Warscewiczii and O. armainvillierense was exhibited by Messrs. Sander & Sons at the R.H.S. Holland House Show in 1913, as Odontonia Magali-Sander (*O.R.*, xxi. p. 244), and the present one must be regarded as the albino variety of the same. It has retained most of the shape of the Miltonia parent, and has very undulate cream white flowers with some deep yellow bars on the sepals and petals, while the lip is ample, and the crest deep yellow, with some lighter yellow markings in front.

ORCHID NOTES AND NEWS.

MEETINGS of the Royal Horticultural Society are announced to be held at the Royal Horticultural Hall, Vincent Square, Westminster, on September 8th and 22nd. The August meetings had to be abandoned because the Hall was required by the War Office, but a communication from the Secretary states that Fellows can be confidently promised that the meeting for September 8th will be held as arranged. The Orchid Committee will meet at the usual hour, 12 o'clock noon.

The next meeting of the Manchester and North of England Orchid Society will be held at the Coal Exchange, Manchester, on September 24th. The Committee meets at noon, and the exhibits are open to the inspection of members and the public from 1 to 4 p.m.

The last issue of the Journal of the Royal Horticultural Society contains an article by the Rev. Prof. G. Henslow, M.A., V.M.H., on "Evolution by Degeneration," a process which is described as simply the result of self-adaptation to new conditions of life. We find a reference to Saprophytism in Orchids, examples being given in the bird's-nest Orchis (Neottia Nidus-avis), and the rare Coral-root Orchis (Corallorhiza innata), in which the leaves are represented by white or somewhat coloured scales. Orchids have not received much attention in the Notes and Abstracts.

Flowers of an interesting hybrid, derived from Cattleya Gaskelliana crossed with the pollen of C. Atalanta, have been sent from the collection of Dr. Hans Goldschmidt, of Essen-Ruhr, Germany. The cross was made in August, 1907, and the seedlings began to bloom in 1913. Dr. Goldschmidt remarks that they include plants with a lip resembling C. Gaskelliana in shape, and others resembling C. Leopoldii, so that the case is fairly parallel with that of C. Sybil, seven forms of which are figured at page 265. C. Atalanta is a secondary hybrid between C. Leopoldii and C. Warscewiczii. The flower sent recalls C. Atalanta in general character, having bright rose sepals and petals, and the lip strongly three-lobed, with ample side lobes and the front lobe deep crimson-purple.

LIPARIS NANA, Rolfe.—We are informed that this curious little Annamese species, of which a note was giveu at page 251 of our last volume, appeared in the establishment of Messrs. Hassall & Co., Southgate. The omission was, of course, accidental, for the information was not given with the specimen.

ORCHID PORTRAITS.

CATTLEYA ASTRON.—*Gard. Mag.*, 1914, p. 611, fig.

CATTLEYA WARSCEWICZII ALBA FIRMIN LAMBEAU.—*G.M.*, 1914, p. 640, fig.

CATTLEYA WARSCEWICZII.—*Journ. Hort.*, 1914, ii. p. 109, fig.

CYPRIPEDIUM SHILLIANUM.— *Journ. Hort.*, 1914, ii. p. 108, fig.

LÆLIA ANCEPS CHAMBERLAINIANA.—*Orch. World*, iv. p. 246, fig.

LÆLIOCATTLEYA CANHAMIANA.—*Gard. Mag.*, 1914, p. 673, fig.

LÆLIOCATTLEYA MISS LOUISA FOWLER.—*Gard. Chron.*, 1914, ii. p. 115, fig. 49.

MASDEVALLIA SHUTTRYANA.—*Orch. World*, iv. p. 245, fig.

MILTONIA VEXILLARIA LÆLIA SANDER.—*Gard. Chron.*, 1914, ii. p. 162, Suppl.

ODONTONIA CHARLESWORTHII.—*Orch. World*, iv. p. 251, fig.; *Gard. Chron.*, 1914, ii. p. 107, fig. 45.

ODONTONIA CLEVERLEYANA.—*Orch. World*, iv. p. 250, fig.

ONCIDIUM CORYNEPHORUM.—*Gard. Chron.*, 1914, ii. p. 100, fig. 43.

ONCIDIUM LEOPOLDIANUM.—*Gard. Chron.*, 1914, ii. p. 99, fig. 42.

SPECIES OR HYBRIDS.—We have been asked whether there is any absolute test between species and hybrids. We must answer, No. Hybrids often exhibit certain degrees of sterility, but this seems less common among Orchids than in many other plants. A completely fertile hybrid whose origin was unknown would pass as a true species, and no doubt often has done so. The late Mr. Borrer once wrote: "If hybrids . . . are so easily produced, so often fertile, and so capable of perpetuating their own forms as the report of the experiments of . . . seem to prove, the gift of scientific divination is indeed needful for determining the species and their products." —*Sm. & Sowerb. Engl. Bot.*, Suppl. v. sub. t. 2961, 2962.

ANSWERS TO CORRESPONDENTS.

[*Orchids are named and questions answered here as far as possible. Correspondents are requested to give the native country or parentage of plants sent. An* ADDRESSED *postcard must be sent if a reply by post is desired (abroad, reply postcards should be used). Subjects of special interest will be dealt with in the body of the work*]

W.W.B.—Two forms of Maxillaria venusta. A note is held over.

A.C.—We will report later.

Received with thanks.—H.G., E.R., H. & Co.

Our readers will not fail to notice the absence of any report of Exhibitions from this number. The R.H.S. meetings had to be abandoned, as explained overleaf, and the report of the Manchester and North of England Orchid Society's meeting on August 13th has not yet reached us.

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Edited by R. ALLEN ROLFE, A.L.S.

CONTENTS:

	PAGE
Amateur's Collection	314
Answers to Correspondents	320
Bulbophyllum elatius	298
Bulbophyllum rigidum	315
Calendar of Operations for October	299
Catasetum splendens	316
Cattleya guttata	318
Cattleya Leopoldii alba	302
Cattleya, Sybil var. Lord Kitchener	297
Epidendrum porpax	318
Habenarias, A group of	305
Hemipilia amethystina	317
Joseph Chamberlain—In Memoriam	295
Orchid Notes and News	319
Orchid Portraits	320
Orchids from Penarth	303
Our Note Book	289
Schombocattleya spiralis	304
Spiranthes gracilis	313
Societies	307
Manchester and North of England Orchid	312
Royal Horticultural	307
Zygopetalum Prainianum	317

ILLUSTRATIONS.

Cattleya Sybil var. Lord Kitchener	297
Habenaria carnea	305
Habenaria militaris	305
Habenaria Susannæ	305
Schombocattleya spiralis	304
Spiranthes gracilis	313

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The Orchid Review

VOL. XXII. OCTOBER, 1914. No. 262.

OUR NOTE BOOK.

AFTER a lapse of six weeks the Royal Horticultural Society was able to resume its fortnightly meetings, and the first September Show was held at the Royal Horticultural Hall, Vincent Square, though not under quite normal conditions. But shortly afterwards the Society was again dispossessed by the War Office, and hurried notices were sent out that the next meeting would be held at the Central Hall, Westminster, the site of the old Westminster Aquarium. At this meeting there was again a good Show, and Orchids were well represented, but it might have been one of the dullest days in November so far as the light was concerned. One descended a flight of stairs into a subterranean hall, spacious enough, it is true, and lighted by electricity, but it was a poor substitute for daylight, and in some cases it was almost impossible to judge the true colours of the flowers, especially the yellows, though the shades of crimson and purple come out well under artificial light, and these colours are always well represented in the Cattleya group, which now figures so largely in Orchid exhibitions. The sudden changing of the venue had also a marked influence on the attendance, and altogether the meeting was held under depressing conditions. As to the future, we have no information at the moment of writing, beyond the fact that two meetings are announced to be held at the Royal Horticultural Hall during October, and under normal conditions a brilliant show of Orchids might be anticipated. (See page 319).

At the first September meeting a very handsome hybrid, exhibited by Messrs. Hassall & Co., Southgate, under the name of Cattleya Sybil var. Lord Kitchener, obtained a First-class Certificate. It was derived from C. Dowiana aurea × C. iridescens, and it came out of the same batch as the seven very diverse forms that were figured at page 265, when the history of the cross was given. This handsome thing is figured at page 297. Three other forms were exhibited at the following meeting, all showing strongly the C. bicolor influence, though in two cases the sepals and petals were

bronzy yellow, like the one certificated, the other being purple. The variation is remarkable, and there are several forms of great promise, for it must be remembered that the seedlings are only producing their first flowers, and consequently are not yet fully developed.

The series of figures is interesting in connection with the claim recently made that new species arise by crossing, and if the validity of the claim were admitted—which it is not—it would be an interesting subject for speculation as to precisely how many new "species" such a batch of seedlings might contain. But the fact is there is no parallelism between these hybrid segregates and species as they occur in nature, indeed hybrid segregates frequently do occur in nature where allied species grow intermixed, but to regard them as identical with the forms from which they arise is not only to ignore their origin, but to lose all sense of proportion. Such a view has been very well described as "grotesque."

The remark was made in a Presidential Address by Prof. Arthur Dendy which opened the Proceedings of the Section of Zoology at the recent meeting of the British Association at Melbourne, which in a sense may be regarded as a reply to the Address we commented on last month. In the main it dealt with general principles, and thus is as applicable to the evolution of Orchids as to that of any other group of organisms. Indeed Prof. Dendy emphasised the fact that one might begin anywhere and trace the course of organic evolution. A brief outline of the argument will certainly be interesting to Orchidists.

At the outset Prof. Dendy alluded to early views on Evolution, which found little acceptance until Darwin elaborated a logical explanation of the way in which it might be supposed to have taken place. The doctrine of Organic Evolution was now unassailable, and the only remaining serious difference of opinion was as to the way it had been brought about, whether by individual response to a changing environment, by the selection of favourable variations, by mutations, or by crossing, and probably there is an element of truth in all of them. There is unmistakable evidence that Evolution has been progressive, and on definite and divergent lines; that organisms are more or less precisely adapted to the conditions under which they have to live, and that the result has been the origination of a vast number of well-defined groups which we call "species." The first was the most fundamental, and the accumulation of potential energy might be regarded as the cause of progress. Each generation accumulates more energy than it requires for its own maintenance, and there is reason to believe that this has been progressive throughout the whole course of

evolution. Even the lowest organisms learn by experience how to make effective response to environment stimuli, and some modification of the protoplasm must take place which renders the act easier with practice. Every cell takes in a certain amount of potential energy in the form of food for its own use, and there is usually something to be handed on to its descendents. The principle may be expressed as a Law of the accumulation of surplus energy.

Given an accumulation of surplus energy progressive evolution must follow. The egg cell might be regarded as an accumulation of surplus energy, and thus it was possible to avoid the troublesome question of the inheritance of acquired characters. Slow successive variation is not chance variation, but is due to fundamental properties of living protoplasm, and is necessarily cumulative. The recapitulation of phylogenetic history in the individual is a logical necessity if evolution has taken place, for even the higher organisms start with the cell. The cell divides and the daughter cells may remain in union and form a colony. Succeeding cells no longer remain all alike, but become differentiated into two groups, which we call somatic cells and germ cells. Evolution is a continuous process, but with the introduction of the sexual process it became broken up into a series of ontogenies, at the close of which the organism has to go back and make a fresh start in the unicellular condition—the somatic cells become exhausted in their conflict with the environment and perish, leaving the germ cells to take up the running. The latter take no part in the struggle for existence to which the body is exposed. They simply multiply and absorb nutriment under the protection of the body, and therefore retain their potential energy unimpaired. Under suitable conditions—*i.e.*, if exposed to the proper environmental stimuli—these give rise to new organisms like those from which they originated.

One necessary condition is the union of the germ cells in pairs to form zygotes or fertilised ova. But the sexual process might be left out of consideration, for organic evolution must have taken place if no such event as amphimixis had ever occurred. The behaviour of an organism at any moment depends on two sets of factors, the nature of its own constitution on the one hand, and the nature of its environment on the other. Throughout the whole course of ontogeny an organism must repeat with approximate accuracy stages passed through by its ancestors; at every stage it does what its ancestors did under like conditions.

An organism inherits two things, a certain amount of protaplasm loaded with potential energy, and an approximate environment, and one is useless

without the other. The inheritance of environment is as important as the inheritance of material, the latter indeed only being inherited to a small extent, for nearly the whole of the adult is captured from the environment and assimilated during ontogeny. In this view the difference between somatogenic and blastogenic characters disappears, for all are acquired afresh in each generation as the result of response to environmental stimuli during development. There is therefore no need to think of germ cells as bearers of hereditary characters. Response is purposive to a great extent, and results in changes of bodily structure, these being adaptive and following definite lines. The whole process of evolution depends on changes of environment so gradual that the necessary self-adjustment is possible at every stage, for with great or rapid changes development would cease altogether.

Prof. Dendy next gave a long and very interesting account of the germ plasm itself, and the gradually increasing complexity of structure introduced by the periodically recurring union of germ cells in pairs through the sexual process—the amphimixis of Weismann—and remarked on the opportunity it afforded for the introduction of diverse characters from different lines of descent through hybridisation. He also admitted that many new and apparently permanent combinations of character might arise by hybridisation, and that the organisms thus produced might have all the attributes of what we call distinct species, but that did not justify us in accepting the grotesque view that all species have arisen by crossing, or even that the organism is entirely built up of separately transmissible "unit-characters." Bateson tells us that "Baur has, for example, crossed species as unlike as Antirrhinum majus and molle, forms differing from each other in almost every feature of organisation." But surely the latter part of the statement cannot be correct, for after all both the parents are snapdragons and have all the essential characters of snapdragons.

It is a most significant fact that the only characters that appear to be inherited in Mendelian fashion are comparatively trivial features of the organism that must have arisen during the last stages of phylogeny. This is necessarily the case, for any species that are sufficiently nearly related to cross are identical as regards the vast majority of their characters. It is only those few in which they differ that remain to be experimented upon, and even some of these appear to be non-adaptive, having no obvious relation to the environment and no particular value in the struggle for existence. They are clearly what Weismann calls blastogenic characters, originating in the germ plasm, and probably identical with the mutations of De Vriese.

An inquiry as to whether Mendelian results are in any way inconsistent with the general theory of evolution outlined in this address was to revive the old dispute between epigenesis and preformation. The theory of evolution here put forward is epigenetic, but the theory of unit-characters is a theory of preformation, as is also the conception of definite organ-forming substances in the cytoplasm, but the latter were in no way incompatible with a fundamental epigenesis. It is possible to conceive a complex organism as inheriting but a minute speck of protoplasm, endowed with potential energy, from its parents, and a sequence of suitable environments, the interaction between the two bringing about a similar result in each successive generation, with a slow progressive evolution due to the operation of the law of the accumulation of surplus energy. If any of the conditions changed, the results, as manifested in the organisation of the adult, must undergo a corresponding modification.

In the case of hybridisation the organism into which the *zygote* develops must be a composite body, deriving its blastogenic characters from different sources, but this cannot affect its fundamental structure, for the two parents must have been alike in all essential respects or they could not have interbred, and any important difference in the germ plasm must be confined to the factors of the differential characters. The fundamental character still develops epigenetically on the basis of an essentially similar germ plasm, and under essentially similar conditions to those of the two parents, and there is no reason to suppose that special "factors" have anything to do with it.

One of the most remarkable things about organic evolution is that it results in the adaptation of an organism to its environment, and for this mutation and hybridisation fail to account. Natural selection has been called in to get over the difficulty—favourable variations hand on their advantages to their offspring—but something more is wanted, and it can be found in the direct response of the organism to its environmental stimuli at all stages of its development, whereby individual adaptation is secured, and this tends to be progressive. Natural selection is no doubt an important factor, but functional selection by the organism itself is still more so. The organism secures from all its over-produced movements those that are adaptive and beneficial. Natural selection is replaced by intelligent selection, for all purposive reaction is essentially intelligent.

That much-abused philosopher, Lamarck, was not far out when he said, "The production of a new organ in an animal body results from a new requirement which continues to make itself felt, and from a new

movement which this requirement begets and maintains." This is only another way of saying that the individual makes adaptive responses to environmental stimuli. Where so many people fall foul of Lamarck is with regard to his belief in the inheritance of acquired characters, but in this he did not refer to such modifications as mutilations, but merely to the gradual self-adjustment of the organism to its environment. The objection that such adjustment will only be preserved so long as the environmental stimuli by which it was called forth continues to act is invalid, for this is exactly what happens in evolution. The *sine qua non* of development is the proper maintenance of the appropriate environment, both internal and external. Natural selection sees to it that the proper conditions are maintained within very narrow limits.

A good deal of the confusion that has arisen with regard to the question of the inheritance of acquired characters is due to the quite unjustifiable limitation of the idea of inheritance to which we have accustomed ourselves. The inheritance of the environment is just as important as that of the material foundation of the body, and whether or not a newly acquired character will be inherited must depend upon whether or not the conditions under which it arose are inherited. According to the epigenetic view, the whole fundamental structure of the body must be due to the gradual accumulation of characters that arise as the result of the reaction of the organism to its environment, and are therefore somatogenic in the first instance. Blastogenic characters which actually arise in the germ-cells appear to be of quite secondary importance.

There remains the question of how organic evolution has led to the formation of those more or less well-marked groups of organisms which we call species. A little reflection will convince us that the origin of species is a different problem from that of the cause of organic evolution, but we can scarcely doubt that Darwin was right in attributing prime importance to divergent evolution and the disappearance of connecting links. It may be urged that inasmuch as different species are often found living side by side under identical conditions the differences cannot have arisen in this way, but we may be certain that these species have not always lived under identical conditions.

Species may clearly arise by divergent evolution under changed conditions of environment, and may become separated from one another by the extinction of intermediate forms. We cannot explain all the causes of difference. We can only say that in the course of its evolution each organism acquires an individuality, or wholeness, of its own, and that one of

the fundamental properties of living organisms is to maintain that individuality. It is just this power of directing chemical and physical processes that distinguishes a living organism from an inanimate object.

This is necessarily a greatly condensed summary, but we have endeavoured to follow the argument as closely as possible, and we take the opportunity of thanking Prof. Dendy for his lucid address. It is refreshing to find so vigorous an exposition, and one that marches so well with the facts as we know them. They are as applicable to the evolution and development of Orchids as to the subject which Prof. Dendy had more particularly in view, and some of them have already been emphasised in our pages in discussing the significance of the Mendelian phenomena, and its bearing on evolution and progressive development.

Prof. Dendy would probably accept the interpretation that "Species originate, increase and multiply, and diffuse themselves from their original birthplace, so far as climatal and other barriers permit. And in gradually extending their area they come under the influence of changed conditions, and, being plastic, they respond to the environment, and, variation resulting, ultimately give rise to what are known as geographical races, by the survival of the variations best fitted to the new conditions. . . . The changes may be, and undoubtedly are, very gradual, but such evidence establishes the case for the existence of inheritable variability. Crossing is undoubtedly a potent cause of variation, but to say that it is the sole cause is only to ignore the evidence of geographical distribution."

JOSEPH CHAMBERLAIN—IN MEMORIAM.

THE last issue of the *Kew Bulletin* contains, under the above heading, an appreciative article by the late Director, Sir W. T. Thiselton-Dyer, in which Mr. Chamberlain's love of gardening and his services to Kew, especially in securing the completion of the great Temperate House, are described. Kew, it is remarked, "owed to Mr. Chamberlain as to no other of our time, stimulus, encouragement and support. In his beautiful home at Highbury he found recreation in his garden from the labours of a strenuous political life. It was not the mere indulgence of a man of means; as with everything else it bore the impress of his own personality and practical ingenuity. An extensive range of glass was incorporated with the house; no outside pilgrimage was needed to visit it. An ample winter garden was a pleasant meeting ground for the family and its guests. Out of this opened a corridor with houses on either hand. A button by the

side of each plate-glass door illuminated at night the interior display. These may seem trivial details. They are not so: they brought Mr. Chamberlain's favourite pursuits into the intimacy of his life. He took no exercise, nor did he find distraction in sports or games. Yet it was a fundamental principal with him that every man, however absorbed in the main pursuit of life, should find a hobby in something wholly remote from it. The physiological implication is sound; for distraction is rest, though not somnolent. Far from it. Mr. Chamberlain knew his plants; their origin and history were recorded in his garden books with his own hands. It may seem a paradox, but a man who could hold a vast meeting spell-bound was not less happy amongst his plants in a garden apron with a short pipe. Yet the secret is the same; he was above all things human."

His love of gardening in a wholly unofficial way influenced his interest in Kew. Apart from its scientific aspects, it was the National Garden, and he was jealous that it should be up to the high-water mark of horticultural enterprise. He wanted the people to have the enjoyment at Kew of the best that a rich man could afford, and he helped personally to secure this end.

No such article could be written without a reference to Orchids, and with the following paragraph relating to them we may conclude:—

"Kew possesses a collection of Orchids which from a scientific point of view has no rival. It has been built up by the energy and cultural skill of the present Curator. Mr. Chamberlain thought that more concession should be made to popular taste in growing showy kinds of no more than horticultural attraction. Kew cannot afford to give a thousand guineas for an Odontoglossum, nor can it be expected to reflect every whim of passing fashion. Mr. Chamberlain contributed Dendrobium hybrids, the result of crosses made by his own hand. It must have been a gratification to him when in 1913 the munificence of Sir George Holford again realised his larger aim, and the Kew Orchids can now equally appeal to the eye and to the intellect. It must not be supposed that in such matters his own taste was otherwise than refined and catholic. He had a wide knowledge of cultivated species. His 'button-hole' was no affectation, but a note of affection for the plants from which official life kept him aloof. One night in the House of Commons the late Lord Avebury, then Sir John Lubbock, also appeared with an Orchid in his button-hole. Mr. Chamberlain at once pounced upon it as something unknown to him. It was our native Butterfly Orchid which Sir John had gathered that morning in his woods at High Elms. It is not trivial to touch on these matters. In drawing a portrait the small touches are at least as significant as the large outlines. Mr. Chamberlain's aim was throughout consistent; he desired that the splendour of a garden should not be the privilege only of the rich."

CATTLEYA SYBIL VAR. LORD KITCHENER.

A SERIES of several forms of the very variable Cattleya Sybil (Dowiana aurea × iridescens), were figured at p. 265 of our last issue,

Fig 35. CATTLEYA SYBIL VAR. LORD KITCHENER.

and now by the courtesy of the *Gardeners' Magazine* we are able to give an illustration of the handsome var. Lord Kitchener, which received a First-class Certificate from the R.H.S. on September 8th. The flower is of good shape and substance, and combines the best characteristics of its parents. It most approaches C. iridescens in the shape of the lip, a character derived from the grandparent C. bicolor, but in other respects is nearer to C. Dowiana, especially in the broad petals. The sepals and petals are dark bronzy yellow in colour, and the front of the lip is intense purple-crimson, while the broad isthmus is deep yellow, and the auriculate side lobes, which are shorter than the white column, are bronzy yellow. The plant was only producing its first flower, and should develop into a magnificent thing when the plant becomes stronger. It is interesting to be able to compare it with others of the same batch, and Messrs. Hassall must be congratulated on the production of so handsome a variety.

At the following meeting three other promising forms were exhibited, all of the bicolor type, and one of them with the flower having rose-purple sepals and petals and a much darker lip, while the other two had bronzy yellow sepals and petals and the front of the lip crimson.

BULBOPHYLLUM ELATIUS.—A distinct and striking Bulbophyllum was exhibited by Messrs. Sander & Sons at the R.H.S. meeting held at the Royal Horticultural Hall, Vincent Square, Westminster, on September 8th last, which on comparison proves to be B. elatius, Ridl., a species apparently not previously in cultivation. It was described in 1896 (*Journ. Linn. Soc.*, xxxi. p. 275), from dried specimens collected at Ulu Tawaran, Borneo, by Dr. Haviland (n. 1371) and at Aya mancior, in the Province of Padang, Western Sumatra, by Beccari (n. 559). Beccari n. 597, from the same locality, also proves to be identical, and all are represented at Kew, while Ridley also cites a specimen collected at Sarawak by Bishop Hose. It belongs to the ebulbose set, and may be compared with B. apodum, Hook. f., a native of the Malay Peninsula, except that it is about twice as large. It has oblong, erect, leathery leaves, 9 to 12 inches long, and narrowed at the base into a stout petiole, 4 to 5 inches long, the leaves being borne direct from the stout rhizome without any pseudobulb, as in this section of the genus. The scapes are basal, about as long as the leaves, the upper half consisting of a narrow spike, crowded with white flowers. Ridley compared it with B. odoratissimum, Lindl., but this has prominent pseudobulbs and short capitate heads of flowers, and belongs to quite another group, though in the individual flowers there is a certain amount of resemblance between the two. A plant from the same source is also flowering at Kew. It is probably one of Micholitz's introductions from Western Sumatra.—R.A.R.

CALENDAR OF OPERATIONS FOR OCTOBER.

By T. W. BRISCOE, Late Foreman of Messrs. Veitch's Hybridising Department.

SHADING.—By the time these lines appear in print all the canvas blinds can be safely dispensed with. A fine day should be chosen for their removal, and then they may be stored in a dry shed until next year. In the meantime any small repairs can be done. Where lath blinds are used they may remain, and will be a great help during cold and frosty weather. At this season it is much better to discontinue the use of blinds, and give a little extra ventilation to prevent the sun scorching the foliage. Cold winds and direct currents of air passing over the plants must be guarded against.

TEMPERATURES.—The following table should be adhered to as far as possible :—

East Indian or Warm house : 65° to 70°.
Cattleya house : 60° to 68°.
Intermediate house : 58° to 62°.
Odontoglossum or Cool house : 55° to 60°.
Cypripedium house : 60° to 65°.
Resting house : 55° to 60°.

The maximum should be reached at mid-day, and in the event of extreme weather a few degrees lower may be permitted. Excessive fire heat is always detrimental to plants, and Orchids are no exception.

WATERING.—This is always an important factor in Orchid culture, and especially at this season. Water should now be afforded less frequently in every house, and most plants can be allowed to dry out a little before more water is given. Plants that are pushing up their flower scapes must not suffer from drought, and the same remark applies to those that are growing, but any that have completed their season's growth should have just enough to keep the pseudobulbs in a plump and rigid condition.

DAMPING DOWN.—The amount of damping down to be done will depend upon the weather, the quantity of hot water pipes in the houses, and the position of the structures. In some districts very little will be required, especially in the Thames Valley and similar places, but where the houses are well exposed more moisture will be needed. If the grower is fortunate enough to have charge of houses where the boiler power and number of pipes are capable of meeting all demands, he is in a much better position, in regard to damping down, than the man with houses that are under-heated. Drip will have to be contended with where excessive damping down is done, and the loss of a few young growths is often the result.

CLEANLINESS.—Now is a good opportunity to do any cleaning that may

be necessary. I do not believe in washing the foliage just for the sake of finding a job, neither do I agree with those who say that the leaves of Cattleyas ought to be sponged at intervals of a fortnight. Here again the district must be taken into consideration, and where collections are situated near large manufacturing towns the foliage will need sponging over more frequently than those in agricultural areas. There are several reliable insecticides advertised in this journal. A careful search must be made for insect pests such as scale, red spider, &c.

PLANTS RE-STARTING INTO GROWTH.—In most collections a number of plants—more or less according to the season—re-start into growth after they have completed their pseudobulbs. I have heard that some growers rub the young growths off, but this disastrous practice ought not to be followed. The best plan is, I think, to let them alone, but the plants may be moved to the warmest end of their respective houses, where this secondary growth will, as a rule, make good progress. Some, of course, will be small, but, generally speaking, the next bulb is up to the usual standard. The Cattleya tribe are the worst offenders in this respect.

CALANTHES.—Those belonging to the vestita section will soon finish their growth, and begin to push up their flower spikes. A light position should be selected, and the temperature kept as near as possible to 65°, but they ought not to be forced, as the flowers are of most value from Christmas onwards. Keep the atmosphere rather dry when the first bloom opens, and all damping between the pots should cease. Calanthes are excellent subjects from the decorative standpoint, and remain in full beauty for several weeks after being cut.

PLANTS COMING INTO FLOWER.—There is no lack of flower at this season, and the Cypripediums will soon be making a bold display. Hybrids in which the genera Brassavola, Cattleya, and Lælia have participated will also give a good account of themselves, while the Brazilian Oncidiums such as O. varicosum Rogersii, O. Forbesii, and especially the pretty little O. cheirophorum will add their quota to the general display. The brilliant Sophronitis grandiflora will be flowering from the centre of the current growth, and the plants must be kept fairly moist at the base. Where a house is set apart for plants in bloom, the atmosphere, ventilation, and watering can be regulated so as to keep the flowers in a fresh condition for a longer period than could be obtained in their respective divisions.

CYMBIDIUMS.—C. giganteum, C. Tracyanum, and several of the fine hybrids which are quite a feature in some establishments, are now making up their pseudobulbs, and flower spikes may appear at any time. Plants that have not been disturbed in recent years, and are in consequence in a pot-bound condition, will derive a certain amount of benefit from alternate waterings of weak liquid manure. As stated in a previous issue,

Cymbidiums are not fastidious concerning temperature, but any examples pushing up their flower scapes may be placed in the Cattleya house with advantage. None should be allowed to suffer from dryness at the root.

MILTONIA ROEZLII.—This plant somewhat resembles M. vexillaria, except that the foliage is not so broad, but it does not prove so amenable to cultivation as that popular species. Its constitution is not so strong, and therefore will need a little more attention, especially after being repotted. Some of the plants will commence to grow at this season, and any repotting may be done if such an operation is deemed necessary. The same kind of soil can be used as advised for M. vexillaria. A light position should be chosen either in the Cattleya house or at the warmest end of the Intermediate division, and water must be applied sparingly until well into the New Year.

DISA GRANDIFLORA should be repotted some time during the present month, and for general treatment, compost, &c., I would refer my readers to our August number. If any flowers have been fertilized, the seed pods will soon be matured, and directly they burst the seed must be sown. They will germinate if sown around an Odontoglossum, Cypripedium, or Disa, providing the surface is free from sphagnum moss or other growth that is likely to choke the seedlings. A suitable temperature is 60°, and on no account must the plants get dry. If the seed is fertile, germination will take place in a few weeks, and when two tiny leaves are formed they can be pricked off into store pots. Keep the seedlings in an average temperature of 60°, pot on as root action increases, then the strongest will bloom in about two years from the time of sowing the seed. Thrip is most troublesome, especially in the early stages of development, and it must be held in check either by dipping the seedlings or vapourising the division. I am told that the beautiful D. grandiflora is getting rather scarce in its native habitat, so it behoves growers to raise a batch of seedlings. A large percentage will come true, in fact the proportion of really bad forms are conspicuous by their absence.

PHALÆNOPSIS, VANDA, AËRIDES, &c.—With the shorter days upon us, this group of bulbless Orchids will need less water, both at the root and in the atmosphere. When the tips of the roots are sealed over, the plants will only need water in sufficient quantities to prevent the leaves showing signs of distress. All should be given a light position, and when the Phalænopsis begin to produce spikes a little more water can be allowed. Slugs are extremely fond of the succulent leaves and spikes of this beautiful genus, and unless a sharp watch is kept fine plants are soon ruined.

LYCASTE SKINNERI.—Most of these are completing their season's growth, but any backward plants may be placed in a warmer house until the pseudobulbs are developed. Although they will thrive in the Cool

house, it is advisable to remove them to a drier structure during the winter months, to prevent the foliage from being disfigured with the spot disease. As the pseudobulbs mature the water supply should be reduced, and a temperature of 50° to 55° should be maintained. The other useful kinds of Lycaste, such as cruenta, aromatic, &c., require similar treatment. The various forms of L. Skinneri make a bold display, and ought to be in every amateur's collection.

SEEDLINGS.—These must be kept on the move, as better results are obtained if they never receive a check. They should not become pot-bound, and the surroundings must be kept tolerably moist, while freedom from all insect pests is essential. In this department repotting is continuous, at least where large quantities are raised. Members of the Cattleya tribe and Cypripediums are usually dealt with at the present time. The progress made during the winter months will depend very largely upon the houses. These should have a span roof, but not too lofty, and be built in an open space. Unfortunately, most of us have to be content with the houses already in existence, but even here we can make reasonable headway by staging the plants as near the glass as possible, and by keeping it clean both inside and out. Seed may still be sown, but after the end of this month it will be as well if a portion of the seed is stored in a dry place until the days begin to lengthen.

VANDA KIMBALLIANA and the chaste V. Watsonii will soon develop their flower scapes, and until these are removed it will be necessary to keep the plants well supplied with water. When the flowering period is passed only sufficient moisture will be needed to maintain the leaves in a plump condition.

CATTLEYA LEOPOLDII ALBA.—A very distinct and striking variety of Cattleya Leopoldii was exhibited at the R.H.S. meeting held at the Royal Horticultural Hall, Westminster, on September 8th last, by Messrs. Sander and Sons, St. Albans. It had light green sepals and petals, without the slightest trace of spots, and a pure white lip. In fact the light green colour of the whole plant showed that it is a true albino. In other respects it agrees completely with the type. So far as we can ascertain nothing of the kind has been recorded before. A curious form which appeared with MM. A. A. Peeters, St. Gilles, Brussels, in 1896, was recorded by Reichenbach under the name of C. guttata Leopoldii immaculata (*Gard. Chron.*, 1896, ii. p. 326), but that is said to have had mauve-brown sepals and petals without a vestige of spots, and a white lip, with the front lobe, as well as the column, of the finest purple. It is therefore not an albino. Nothing further is known about it. The appearance of a true albino of the species is interesting, and the plant should be taken care of.—R.A.R.

ORCHIDS FROM PENARTH.

FLOWERS of a number of interesting and beautiful Orchids, both species and hybrids, are sent from the collection of J. J. Neale, Esq., of Penarth, by Mr. H. Haddon. Regarding the hybrids Mr. Haddon remarks that they were purchased when quite small plants, and have done well. One fine Cattleya spike bears as many as 13 flowers, the cross being C. Bowringiana × granulosa, and thus is a form of C. Hopkinsii (*Orchid Stud-book*, p. 262). The flowers are larger than in C. Bowringiana, and fairly intermediate in shape, the sepals and petals being bright rose-purple, and the lip strongly three-lobed, with ample white side lobes, and the front lobe rose-purple with darker veining. A spike of C. Browniæ (Harrisoniana × Bowringiana), has nine flowers, most like the former in the lip, and the latter in the sepals and petals. Good flowers of Cattleya granulosa and C. Iris are also enclosed. Another effective autumn-flowering hybrid is Læliocattleya Parysatis (C. Bowringiana × L. pumila), of which a four-flowered scape is sent, the colour being rose-purple, with the upper half of the lip dark purple. L.c. Edwena (L. purpurata × C. bicolor), is a large flower, with blush pink sepals and petals and a purple lip, the latter having a long isthmus and small white basal auricles. L.c. Issy (L. tenebrosa × C. Leopoldii) and good forms of L.c. elegans are enclosed, also flowers of Brassocattleya Maroniæ and B.-c. Mariæ.

Among the species we may mention the remarkable Bulbophyllum grandiflorum, which Mr. Haddon says grows very fast, but will not flower unless the young growths are broken off, and the plant kept very dry, after which it soon makes fresh growth. We have not noticed any difficulty in flowering this species, and would suggest that another position be chosen for the plant rather than such unnatural treatment as breaking out the young growths. The beautiful Oncidium Lanceanum is said to grow well with the warm Cypripediums. The other species are Masdevallia peristeria and Barlæana, Epidendrum cochleatum, Rodriguezia fragrans, Dendrobium mutabile, Pleurothallis pulchella, and a good example of Cycnoches chlorochilon. Mr. Neale has quite a representative collection of Orchids, an account of which was given at pp. 251-253 of our nineteenth volume, and the beautiful series of flowers sent affords evidence of good culture, and of the decorative value of hybrids of the Cattleya group, especially for autumn-flowering.

Mr. Haddon has now three plants of Oncidium Lanceanum, and these have been propagated from a single one, by cutting through the rhizome and causing it to break from the older portion. Two of these plants have flowered well, producing two spikes each.

SCHOMBOCATTLEYA SPIRALIS.

THIS remarkable generic hybrid has recently flowered well at Kew. It was originally raised by M. Dallemagne, of Rambouillet, France, from Schomburgkia tibicinis ♀ and Cattleya Mossiæ ♂, and was exhibited at a meeting of the Sociétié Nationale d'Horticulture de France in August, 1903, when it received a First-class Certificate (*Journ. Soc. Nat. Hort. Fr.*, 1903, p. 534). The annexed figure represents one of the flowers, about two-thirds natural size, and it will be seen that it has retained the characters of

Fig. 36. SCHOMBOCATTLEYA SPIRALIS.

the seed-parent to a remarkable extent, though the size is about doubled. The segments are also more acuminate, and more or less twisted—in allusion to which the name is given—while the side lobes of the lip are less rounded and overlapping, and the front lobe greatly enlarged and separated from the side lobes by a broad isthmus. The sepals, petals, and front lobe of the lip are bright rose-purple, and the side lobes tipped with the same colour, while inside they are veined with dark purple on a light buff yellow ground. The disc is reddish-purple at the base and yellow in the centre. The plant also most resembles the Schomburgkia parent in general character.

A GROUP OF HABENARIAS.

THE three beautiful Habenarias here depicted are not too frequently seen in good condition in gardens, but Habenaria Susannæ, the specimen seen in the upper figure, was well shown by Messrs. Charlesworth & Co., Haywards Heath, at the R.H.S. meeting held on September 8th last, bearing a spike of six flowers. The group here figured bloomed in the collection of the late Sir Trevor Lawrence, Bart., at Burford, and includes H. Susannæ, with two plants of the brilliant H. militaris on either

Fig. 37. HABENARIA SUSANNÆ.
Fig. 38. H. MILITARIS. Fig. 39. H. CARNEA.

side, and three plants of H. carnea in front. The first-named, being naturally tall, had to be lowered when the photograph was taken, and the two others are hardly advanced enough to show the spikes at their best. These plants are always admired when seen in collections, and the chief reason for their rarity is that, by reason of their deciduous habit, they are not easily grown with other Orchids. They are tractable enough when placed under suitable conditions, and H. militaris has long been successfully grown at Burford, under a method of treatment that was given in detail by

Mr. White at pp. 83-85 of our first volume. They are apt to get neglected during the resting season, and probably this is one of the chief causes of failure to keep them for any length of time. They should be grown in good loam, with a little fibre to keep it open, and require the temperature of the Warm house, with plenty of moisture and moderate shade when growing, and somewhat cooler and drier conditions when at rest.

HABENARIA SUSANNÆ (fig. 37) is a well-known Indian species, which was known to Linnæus under the name of Orchis Susannæ, and to Lindley as Platanthera Susannæ, the latter, considering that Habenaria had become too large and polymorphic, a view that finds acceptance among modern Orchidists. It has long been known in cultivation, and is figured at t. 3374 of the *Botanical Magazine*. In August, 1894, it received a First-class Certificate from the R.H.S., when exhibited by Messrs. Sander. It is widely diffused, being found in North and South India, South China, and in some of the Malay Islands. The late Major-General Berkeley once sent us a very interesting account of it. He remarked: "I have met with it both in India and Burma, and it was always a great delight to come across a group of it. It is found in very warm, sheltered, moist places. It is too soft and succulent a plant to grow under any conditions, and should do well in a shady corner in the stove. The flowers are not always pure white. I have found spikes of it with a dash of green, but all the varieties are beautiful" (*O.R.*, ii. p. 331). The beautifully fringed lip and long spur always render it a striking object.

HABENARIA MILITARIS (fig. 38) is a very brilliant species, which was discovered by M. Godefroy Lebeuf in the mountains south of Phu Quoq, in Cambodia. It was originally described by Reichenbach in 1870, from a dried specimen, under the name of H. pusilla (*Otia Bot. Hamb.*, p. 33). M. A. Regnier afterwards obtained it from Cochin China, probably from the mountainous region of Tay-ninh, and in 1896 he sent a living plant to Reichenbach, who recognised it as H. pusilla, but considering his original name too inappropriate, renamed it H. militaris, in allusion to the brilliant colour of the lip, resembling a soldier's jacket. We may add that in October, 1893, Sir Trevor Lawrence was awarded a Silver Flora Medal for a large pan of it, over two feet in diameter, containing several fine plants.

HABENARIA CARNEA (fig. 39) is a native of Perak, where it grows on limestone rocks, and was sent home by Mr. C. H. Curtis, of the Forest Department. It flowered at Kew, and with Messrs. James Veitch & Sons, Chelsea, in 1892. The leaves are suffused with pinkish brown on a grey ground, and mottled with white, while the flowers are of a delicate shade of flesh pink. It is a charming little plant, and was awarded a First-class Certificate by the R.H.S. in October, 1893, when exhibited by Messrs. Sander. It may be pointed out that the black spots seen on the

lip are openings between the lobes, through which the dark background is seen. There is a white-flowered form, called var. nivosa, and in this the leaves are green and unspotted, though in other respects it agrees with the type. This was exhibited by Messrs. W. L. Lewis & Co., Southgate, at a meeting of the R.H.S. held in July, 1894, when it received an Award of Merit (*O.R.*, ii. p. 290), but it has since apparently been lost sight of.

SOCIETIES.

ROYAL HORTICULTURAL.

AFTER an interval of six weeks, occasioned by the outbreak of war and the requisition of the Royal Horticultural Hall by the military authorities, the Society was able to hold the meeting announced for September 8th. There was a fairly good display of Orchids, including several novelties, and the awards consisted of four medals, one First-class Certificate, and two Awards of Merit. The Orchid annexe was still in the possession of the military, and the Orchid Committee sat in the opposite annexe, where a good many of the exhibits were staged.

Orchid Committee present: J. Gurney Fowler, Esq. (in the Chair), Messrs. J. O'Brien (hon. sec.), W. Bolton, Gurney Wilson, J. Charlesworth, E. H. Davidson, W. H. White, A. Dye, H. G. Alexander, J. E. Shill, J. Cypher, W. H. Hatcher, T. Armstrong, A. McBean, F. J. Hanbury, S. Low, R. A. Rolfe, S. W. Flory, C. H. Curtis, and Sir Harry J. Veitch.

H. T. Pitt, Esq., Rosslyn, Stamford Hill (gr. Mr. Thurgood), staged an interesting little group, which gained a Silver Banksian Medal. It included a well-flowered Miltonia vexillaria superba, Dendrobium ciliatum annamense, differing from the type in its very dwarf habit and purple instead of yellow markings on the lip, Promenæa xanthina, Cattleya venusta (Armstrongiæ × intricata), with lilac-coloured flowers and a strongly three-lobed lip, two forms of C. suavior, C. Venus, C. Thayeriana, Odontoglossum Thompsonianum, Cypripedium Baron Schröder, C. pictum (nitens × glaucophyllum), and other interesting hybrids, several of which were raised in the collection.

R. G. Thwaites, Esq., Chessington, Streatham (gr. Mr. Hannington), staged an interesting little group, including two plants of Cattleya Euphrasia, Odontioda Charlesworthii, two examples of O. Devosiana, with an unnamed Sophrocattleya and two blotched Odontoglossums.

R. Brooman White, Esq., Arddarroch, Garelochhead, (gr. Mr. Smith), sent cut blooms of a richly-coloured form of Odontoglossum Aliceæ (Edwardii × spectabile), having violet-purple flowers tipped with white.

Messrs. Charlesworth & Co., Haywards Heath, staged a choice group of well-grown plants, including the rare Paphinia cristata with a twin-flowered scape, a fine Habenaria Susannæ with six flowers, the fine yellow Phaius Ashworthianus, Odontoglossum armainvillierense and var. xanthotes, the latter with a fine branched inflorescence, Cattleya Chamberlainiana with six flowers, a fine C. Rhoda with pale yellow sepals and petals and rose-purple lip, Brassocattleya Maroniæ and Leemanniæ, Sophrolælia heatonensis, Zygopetalum maxillare with three spikes, Odontioda Charlesworthii, Cypripedium Maudiæ, C. Baron Schröder, and others (Silver Banksian Medal).

Messrs. Stuart Low & Co., Jarvisbrook, Sussex, staged an effective group, including some good examples of Vanda cœrulea, the rare Lælia longipes alba, Oncidium Kramerianum and incurvum, Cypripedium præstans, a fine Cattleya Leopoldii with a spike of eleven flowers, C. Adula, C. Iris, C. Forbesii, a very fine C. Warscewiczii with a spike of six flowers, C. Ingramiæ alba, with white sepals and petals and the lip purple-crimson in front, Cattleya King Albert (Parthenia × Dowiana aurea), having pretty cream white sepals and petals and some yellow and rosy markings on the lip, C. Carmen, and Læliocattleya Figaro (L. Iona × C. Dowiana aurea), with nankeen yellow sepals and petals and the lip deep violet in front (Silver Banksian Medal).

Messrs. Sander & Sons, St. Albans, staged a fine group, including Cattleya Leopoldii alba, a very pretty albino with clear light green sepals and petals and a pure white lip, some good C. Dowiana, C. Ella with six flowers, C. Wincqziana, Bulbophyllum elatius (see page 298), B. grandiflorum, Odontioda Euterpe, with brick-red flowers, Odontoglossum grande and O. Uroskinneri album, the rare Angræcum Moloneyi, Saccolabium acutifolium, Dendrobium Sanderæ, sanguinolentum, and ciliatum, Miltonia spectabilis Moreliana, the brilliant Lælia monophylla with numerous flowers, Pachystoma Thompsoniana, Brassia longissima, Læliocattleya Walter Gott, and several others, Zygopetalum Prainianum, an interesting novelty allied to Z. Burkei (see page 317), good examples of Cypripedium Maudiæ, and others (Silver Banksian Medal).

Messrs. E. H. Davidson & Co., Orchid Dene, Twyford, showed Cattleya Hardyana Orchid Dene variety, C. Loddigesii Snowflake, a beautiful albino, and Læliocattleya Davidsoniæ (L.-c. bella × C. labiata), most like an immense, richly-coloured form of the latter.

Messrs. Flory & Black, Orchid Nursery, Slough, sent a plant of Cirrhopetalum Rothschildianum, one of the handsomest species in the genus.

Messrs. Hassall & Co., Southgate, sent good forms of Cattleya Dowiana aurea, C. Iris, C. Hardyana, and C. iridescens.

Messrs. J. & A. McBean, Cooksbridge, sent an interesting little group,

including good forms of Cattleya Rothschildiana with white sepals and petals, C. Brenda, a pretty albino, C. Katie (fulvescens × C. Dowiana aurea), a pretty hybrid most resembling the former parent, Odontioda Charlesworthii, and two good plants of Brassocatlælia Norba (B. nodosa × L.-c. callistoglossa), most like the former in general character, and with white ground colour, one of them sparsely and the other more regularly spotted with purple.

First-class Certificate.

Cattleya Sybil var. Lord Kitchener (C. Dowiana aurea × iridescens).—A very brilliant hybrid out of the same batch as the seven figured at page 265, and most like C. iridescens in general character. The flower was of fine shape and substance, the sepals and petals deep chrome yellow with a slight rosy shade, and the front lobe of the lip ruby-crimson, with the broad isthmus and small side lobes deep orange yellow. The plant was small, and bore a single flower, and the pseudobulbs were one-leaved. It should develop into a superb thing. Exhibited by Messrs. Hassall & Co. (See page 297, fig. 35).

Awards of Merit.

Cattleya iridescens var. aurifera (bicolor × Eldorado).—A handsome flower of good shape, the sepals and petals clear yellow, and the front lobe of the lip rose-purple with a narrow white margin, with the isthmus deep yellow and the small side lobes paler. Exhibited by Messrs. E. H. Davidson & Co.

Læliocattleya Thyone McBean's var. (L.-c. Ophir × C. Dowiana aurea).—A charming hybrid, having flowers of good shape, with light yellow sepals and petals, and the broad lip crimson-purple, with some yellow lines radiating from the base. Exhibited by Messrs. J. & A. McBean.

The Society's Hall has again been commandeered for military purposes, and the meeting of September 22nd was held at short notice in the Central Hall, Westminster, the site of the old Westminster Aquarium. It is a spacious under-ground apartment, lighted by electric light, which rendered it very difficult to judge the colour of the flowers. Two rooms, one at each end of the Hall, were illuminated by daylight, and were monopolised by vegetables, which were practically the only things that could be viewed under normal conditions.

The Committees sat in an annexe at the side, in almost November gloom, the Orchid Committee being represented as follows: J. Gurney Fowler, Esq. (in the Chair), and Messrs. Jas. O'Brien (hon. sec.), W. Bolton, J. Wilson Potter, F. J. Hanbury, F. Sander, Walter Cobb, R. G. Thwaites, T. Armstrong, J. Charlesworth, W. H. Hatcher, C. H. Curtis, A. Dye, E. H. Davidson, S. W. Flory, Gurney Wilson, R. A. Rolfe, and

Sir Harry J. Veitch. There was a very good show of Orchids, and five groups gained medals, but they were completely scattered. Several plants were submitted to the Committee for Certificate, but only one of them gained an Award of Merit.

H. T. Pitt, Esq., Rosslyn, Stamford Hill (gr. Mr. Thurgood), staged an interesting and pretty group, which gained a Silver Banksian Medal. The back consisted of numerous good Cattleyas and Læliocattleyas, among which we noted C. Wendlandiana with two fine racemes, C. Iris, two well-flowered plants of the beautiful C. Hardyana var. Countess of Derby, with white sepals and petals, C. Dowiana aurea, C. Thayeriana, C. Source d'Or, C. suavior, C. Thela (Whiteleyæ × Hardyana), and C. Harrisoniana alba, Læliocattleya Pallas, L.-c. Martinetii × C. Dowiana aurea, with salmon-rose sepals and petals, and a richly-coloured lip with some yellow in the throat, and another interesting thing from C. Harrisoniana alba × L.-c. Constance Wigan, with a spike of five light-coloured flowers, most like the Cattleya parent in shape. We also noted the fine yellow Odontoglossum grande Pittianum, O. bictoniense album, O. crispum, O. loochristiense, Miltonia Clowesii, three plants of Chondrorhyncha Chestertonii, Brassocattleya Pittiana and Maroniæ, the fine Cypripedium Germaine Opoix, and other interesting things.

R. G. Thwaites, Esq., Chessington, Streatham (gr. Mr. Hannington), received a Bronze Banksian Medal for an interesting little group, mostly consisting of hybrids raised in the collection, and including five plants of Odontioda Devosiana, O. Thwaitesii, O. Cupid, O. Bradshawiæ, and O. crispilia (O. Cecilia × Odm. crispum), Cattleya Adula, Iris, Pittiana Euphrasia, and C. Gaskelliana alba, a fine Læliocattleya Dominiana, Odontoglossum Uroskinneri, Miltonia vexillaria Leopoldii, and others.

J. Gurney Fowler, Esq., Brackenhurst, Pembury (gr. Mr. Davis), sent Cattleya Prince Edward (Schilleriana × Warscewiczii), bearing a spike of six very richly-coloured flowers, and Brassolælia Madame Irene Mavrocordato (L. Iona nigrescens × B. Digbyana), bearing a single flower with rose-purple sepals and petals, and a dark purple fringed lip.

Pantia Ralli, Esq., Ashtead Park, Epsom (gr. Mr. Farnes), sent Cattleya Harrisoniana alba, with a spike of five flowers, Læliocattleya Anthela Ashtead Park var. (L.-c. Phryne × C. Warscewiczii), a pale yellow flower with a rosy mauve lip and some yellow veining in the throat, and L.-c. Thyone var. Bonnie (L.-c. Ophir × C. Dowiana aurea), having yellow flowers with red lines at the base of the lip.

Messrs. Charlesworth & Co., Haywards Heath, staged a choice group, including the beautiful Læliocattleya amabilis (L.-c. Fascinator × C. Lueddemanniana Stanleyi), a fine thing with white sepals and petals, and some brilliant purple markings on the lip, Cattleya Antiope (C. Chamber-

lainiana × C. Dowiana aurea), having white sepals and petals, and a deep crimson lip, Sophrocattleya Niobe, S.-c. Chamberlainii, Sophrolælia Gratrixiæ, Brassocattleya Maroniæ, B.-c. Rutherfordii, with nearly white flowers, three very varied forms of the striking Odontioda Brewii, Zygocolax Charlesworthii, the striking Habenaria Susannæ, Oncidium incurvum album, Paphinia cristata with twin-flowered scape, Dendrobium formosum giganteum, D. superbiens with three racemes, Listrostachys Chailluana, Cypripedium leyburnense nigrescens, C. Maudiæ, and other good things (Silver Banksian Medal).

Messrs. Stuart Low & Co., Jarvisbrook, Sussex, staged a fine group, including two magnificent Cattleya Hardyana alba from different crosses. The first was from C. Dowiana aurea × C. Warscewiczii Frau Melanie Beyrodt, and had large white sepals and petals, and a very broad rosy-crimson lip, with two yellow eyes and some similar veining in the throat. The second form was obtained from C. Dowiana aurea × C. Warscewiczii, and closely resembled C. Hardyana Countess of Derby, but had much larger eyes to the lip. It bore four flowers. We noted also C. Gaskelliana alba, C. G. Milady, white with a purple blotch on the lip, C. Adula, Iris, Thurgoodiana, C. Harrisoniana alba, Dowiana, the old C. guttata with a spike of fourteen flowers, Vanda cœrulea, two fine plants of Oncidium incurvum, O. Kramerianum, Lælia crispa, Brassocattleya Maroniæ, and many others (Silver Banksian Medal).

Messrs. Sander & Sons, St. Albans, staged a choice group, in which forms of Cattleya Iris, Mantinii, Hardyana, Maronii, Rothschildiana, Adula, C. Dowiana aurea, and others made a fine display, with Lælio-cattleya bletchleyensis, Phœnix, Schusteriana, the fine Anguloa Cliftonii, Acineta chrysantha, Gongora grossa, Bulbophyllum densiflorum, and rigidum, Oncidium incurvum album, Miltonia Roezlii alba, Dendrobium eriæflorum, several Odontoglossum grande, the rare Sigmatostalix radicans, Cirrhopetalum appendiculatum and Micholitzii, Oberonia myriantha, Saccolabium acutifolium, Cypripedium Franconia, Maudiæ, Dallas (Curtisii × Fairrieanum), Odontioda Charlesworthii, Sarcanthus filiforme, and others (Silver Banksian Medal).

Messrs. Hassall & Co., Southgate, staged a group of interesting plants, including Cattleya iridescens, C. Beatrice (Minucia × Dowiana aurea), having light yellow sepals and petals, and the lip purple with a yellow throat, C. Thurgoodiana, C. Loddigesii alba Stanley's var., C. Rothschildiana, and C. R. alba, C. Frederickiæ alba, and three diverse forms of C. Sybil. These combined the one-leaved habit with the bicolor-like type of flower, one being rose-purple with a very much darker lip, and the other two having different shades of bronzy yellow sepals and petals, with the front lobe of the lip ruby purple and the isthmus orange. We noted also Brasso-

cattleya Maroniæ, Cypripedium Lairessei with four flowers, and C. Bryan × C. callosum, with dark-spotted Argus-like petals.

Messrs. J. & A. McBean, Cooksbridge, sent a very fine Cattleya Hardyana with five flowers on the spike, some forms of C. Dowiana alba, C. Rothschildiana alba, Læliocattleya Thyone, Odontioda Diana and Bradshawiæ, and the interesting Peristeria elata, the Dove Orchid.

AWARD OF MERIT.

CATTLEYA AMABILIS FOWLER'S VAR. (labiata × Warscewicii).—A large and handsome hybrid, bearing a spike of three flowers of good shape, and having rosy-mauve sepals and petals, and a deep purple lip, with two large yellow eyes in the throat, and some yellow veining on the disc. Exhibited by J. Gurney Fowler, Esq.

MANCHESTER & NORTH OF ENGLAND ORCHID.

At the meeting held at the Coal Exchange, Manchester, on Thursday, August 13th, the members of Committee present were: *Z.* A. Ward, Esq. (in the Chair), Messrs. D. McLeod, H. Thorp, A. Hanmer, J. J. Bolton, A. J. Keeling, J. Lupton, R. Ashworth, W. Shackleton, G. Weatherby, and H. Arthur (Secretary).

R. Ashworth, Esq., Ashlands, Newchurch (gr. Mr. Gilden), was awarded a Silver-gilt Medal for a mixed group, including Cattleya Caduceus, Hardyana, Germania, Macænas, Dowiana aurea, and Gaskelliana alba var. R. Ashworth, Odontoglossum crispum virginale, O. c. xanthotes Ashlands var., and O. Pescatorei Ashlandii, Miltonia Bleuana and Roezlii, Cypripedium Rolfei var. R. Ashworth, C. Daisy Barclay, C. Godefroyæ var. Sunset, and C. Transvaal, Masdevallia Harryana splendens, Cycnoches peruvianum, and others.

Z. A. Ward, Esq., Northenden (gr. Mr. Weatherby), staged a group, a feature being the excellent culture shown in the long-bulbed section of hybrid Cattleyas, one plant of C. × Atalanta carrying 17 good flowers on one spike (a Cultural Certificate with Bronze Medal being awarded to the Gardener); several varieties of C. × Iris, including St. Giles and Williei. Cypripedium Rossetti, C. tixallense, C. Maudiæ magnificum, C. St. Alban, and others, a Large Silver Medal being awarded.

Col. J. Rutherford, M.P., Blackburn (gr. Mr. Lupton), was awarded a Silver Medal for a small choice group, composed principally of Cattleyas, including the Beardwood var. of C. Gaskelliana alba, C. Dowiana aurea, and C. Ella, a few Cypripediums, the rare Odontoglossum Rossianæ, &c.

Messrs. A. J. Keeling & Sons, Bradford, were also awarded a Silver Medal for a group of Cypripediums in variety.

Mr. J. Birchenall, Alderley Edge, staged Chondrorhyncha Chestertoni and Oncidium incurvum.

Award of Merit.

Cypripedium Fairri-tisii (Farrieanum × Curtisii), a good large flower, showing both parents, from Messrs. A. J. Keeling & Sons.

Cultural Certificate.

To Mr. G. Weatherby, gr. to *Z.* A. Ward, Esq., for Cattleya Atalanta, carrying 17 flowers on one spike.

SPIRANTHES GRACILIS.

THE genus Spiranthes is very widely diffused through both the eastern and western hemispheres, and is represented in Britain by two species, S. æstivalis and S. autumnalis, the latter being frequently met with on open

Fig. 40. Spiranthes gracilis.

downs during the late summer months. The genus is more numerously represented in North America, where the subject of our figure, Spiranthes gracilis, Beck, has a wide diffusion. The flowers are white, with some green in the centre, and are borne in a continuous spiral, which winds round and round the floral axis, as seen in the figure, giving it a very quaint appearance. It is from this character that the genus takes its name.

The leaves are ovate and are borne in a radical tuft, and the roots are thickened and fasciculate. The photograph was sent to us by Mr. F. J. Le Moyne, of Winfield, Tennessee, U.S.A.

There are about twenty North American species of the genus, and one of them, Spiranthes Romanzoffiana, singularly enough, is also found in a few stations in the south of Ireland, but nowhere else in Europe, forming one of the most anomalous cases of distribution in the family. It was at one time thought to be peculiar to Ireland, and was described by Lindley under the name of S. gemmipara, but was afterwards found to be identical with the North American plant. It is figured at t. 5277 of the *Botanical Magazine*, where the history of the species is given.

THE AMATEUR'S COLLECTION.

By C. ALWYN HARRISON.

THE colder and shorter days are now fast closing in upon us, and therefore every effort must be made to give the plants all light and air, especially to those which are completing or making their new growths. The past two months have been of immense value in maturing the new bulbs of Cattleyas, such as C. labiata, C. Fabia, and other hybrids, also Lælia anceps, and a grand display of bloom may be expected later on in the autumn.

Give water to all those plants which are in need of any, but during the winter months, if any doubt exists as to whether such and such a plant requires water, leave it until the day following. Considerable injury may be done at this season by overdosing, when water evaporates slowly, and less risk of causing the growths to rot will be run if the plants are kept a little on the dry side.

Many Dendrobiums will now have finished their growth, and should be suspended, near the roof in a cool and dry vinery, where the temperature ranges between 50° and 55° Fahr. Little water is needed, beyond preventing any undue shrivelling of the pseudobulbs until the flower buds make their appearance later. D. Wardianum, nobile, crassinode, and the hybrids Ainsworthii, Cybele, Juno, and Rolfeæ, all form suitable subjects for an amateur's collection. Damping down in the house will now probably only be needed once, about 10 a.m., but on bright days, when the sun shines with force, a second damping may be desirable.

Cypripediums will now be throwing up their flower scapes, and these, when of sufficient length, should be tied to neat sticks, as they will then be compelled to grow erect, and show off thereby their handsome blossoms to the fullest advantage.

Odontoglossum grande is now in spike or bloom. Keep a sharp look-out for slugs, which are very partial to them. If cotton wool be wrapped round the base of each spike, and poisoned bran be placed on small pieces of cardboard and stood about on the staging, these lovely flowers should be immune from attacks. Should foggy weather set in, the roof glass must be frequently washed, or the house would quickly become gloomy, and weak growth would result.

Vanda cœrulea has usually finished blossoming by this time, and, if in need of fresh moss, can have it renewed, but since little further growth is made until the following spring, this operation can easily be deferred. Sponge the leaves at frequent intervals. This also applies to all the other Orchids in the house, and should the dreaded "spot" make its appearance, this must be cut out and a little slaked lime rubbed in the affected leaf, keeping the plant somewhat drier for some time. "Spot" is generally caused by excessive moisture accompanied by too low a temperature, and drip from the roof should be guarded against.

Bulbophyllum rigidum.—A curious Bulbophyllum has been sent to Kew for determination by Messrs. Sander & Sons, St. Albans, which proves to be the one described by Messrs. King & Pantling as B. rigidum (*Orch. Sikkim Himal.*, p. 69, t. 94), a species whose history has been much confused. It is the Bulbophyllum conchiferum Hook. f. (*Fl. Brit. Ind.*, v. p. 766), but not Reichenbach's plant of that name, which is an allied species collected by Thomas Lobb in the Khasia Hills. There are dried specimens of both at Kew, the former collected in Sikkim by Griffith, C. B. Clarke, and J. S. Gamble, the altitude being given as 3000 to 4000 feet, while King and Pantling give the altitude as 6000 feet. It has previously appeared in cultivation, having been sent for determination from the collection of H. J. Elwes, Esq., in August, 1894, without record of locality, and before the confusion had been detected. It belongs to the ebulbose section of the genus, and is allied to B. apodum, Hook. f. The leaves are erect, 6 to 10 inches long, and narrowed at the base into a petiole, which springs direct from a node on the stout rhizome, the pseudobulbs being obsolete, as in other species of the section. The scapes are nearly as long as the leaves, and the flowers are racemose, lax, and the colour brownish yellow or greenish, with a few brown streaks at the base. It may be added that in the *Flora of British India*, B. rufinum, Rchb. f. *Xen. Orch.*, iii. p. 44, t. 219, fig. 1, is given as a synonym of B. conchiferum, but this is a mistake, for B. rufinum has large pseudobulbs, and arching spikes of buff-coloured flowers streaked with red. It is indeed nearly allied to B. cupreum, Lindl. It is a Burmese species, and is often seen in cultivation in botanical collections.—R.A.R.

CATASETUM SPLENDENS.

A PHOTOGRAPHIC illustration of Catasetum splendens appeared in *The Field* of September 12th last, together with the following note:—

Darwin, in his *Fertilisation of Orchids*, has a most interesting chapter on Catasetums, "the most remarkable of all Orchids." Nature has, he says, endowed them with sensitiveness, and with the remarkable power of forcibly ejecting their pollen to a distance. When certain hair-like organs are touched by an insect the pollinia are shot out like an arrow, which is not barbed, but has a blunt and excessively adhesive point. The insect, disturbed by so sharp a blow, or after having eaten its fill, flies sooner or later to a female plant, and whilst standing in the same position as it did when struck, the pollen-bearing end of the arrow is inserted into the stigmatic cavity, and a mass of pollen is left on its viscid surface—a most wonderful contrivance in a flower for the sole purpose of pollination. Catasetum is a large genus, and shows a wide range of variation. It is also remarkable in having distinct male and female flowers. The plant we figure is a natural hybrid between two of the most striking species, namely, C. macrocarpum and C. Bungerothii, both natives of South America. It was introduced into cultivation about twenty years ago from Venezuela by M. Linden, the well-known Belgian nurseryman, and it caused some excitement among botanists owing to the variation in size, form, and colour of flower exhibited by the individual plants. They have since mostly gone out of cultivation, for Catasetums are not easy to keep in health. There is, however, a very good collection of them at Kew, where the plant here represented has flowered recently. Writing of this hybrid and its various forms when they were first introduced, Mr. R. A. Rolfe, the orchidologist, said there were a number of very remarkable forms representing a transition series between two common and very distinct species, with which they were found growing. One wonders what happened to the plants of this hybrid that were not interfered with by the collector, whether they have reproduced their kind, or have given rise to what might reasonably be called a distinct species. The genus ought to be specially interesting to Mendelians. It certainly is of more than ordinary interest to morphologists, and is not without attractions for gardeners.

The note serves to recall a very remarkable group which was exhibited at a meeting of the R.H.S. in November, 1894, by Messrs. Linden, Brussels, and to which a Silver Banksian Medal was given. It contained plants of what were regarded as four new species, as well as examples of C. macrocarpum and C. Bungerothii, all of which were believed to have come

out of the same importation, but we gave reasons for regarding the novelties as natural hybrids between the two others (*O.R.*, ii. pp. 355-357), one of which had previously flowered with Messrs. Hugh Low & Co. Other forms subsequently appeared, and a series of figures was published. The events indeed caused a good deal of excitement at the time, but the plants seem to have vanished almost as rapidly as they appeared. A few, however, remain, and are occasionally met with. The history of the question was given at pp. 43, 85 of our third volume. The form figured in the *Field* most resembles the C. macrocarpum parent.—R.A.R.

Hemipilia amethystina.—A very pretty little Orchid, which was found in a recently imported clump of Cypripedium Charlesworthii, has flowered in the collection of A. Grant, Esq., Rugby House, Cleethorpes. It proves on comparison to be Hemipilia amethystina, Rolfe, a species which flowered in the establishment of Messrs. W. L. Lewis & Co., Southgate, in June, 1896, being exhibited at a meeting of the Royal Horticultural Society as a species of Pogonia, and gaining an Award of Merit. It was then recorded as Hemipilia amethystina (*O.R.*, iv. p. 222), and soon afterwards was figured in the *Botanical Magazine* (t. 7521). This also flowered in an importation of Cypripedium Charlesworthii. It is a charming little plant, bearing a single spreading cordate leaf, prettily marbled with green and brown, at the ground level, and a short erect spike of Orchis-like flowers, the sepals and petals being light green and the lip purple. In June, 1906, a plant flowered in the collection of Sir Frederick Wigan, Clare Lawn, East Sheen, and again received a Botanical Certificate from the R.H.S. (*O.R.*, xiv. p. 243), and three years later it was also exhibited by Messrs. Sander & Sons (*O.R.*, xviii. p. 279). The genus is nearly allied to Cynorchis, and contains about ten species, natives of India and China. Another handsome species is occasionally seen in cultivation, namely, Hemipilia calophylla, Par. & Rchb. f., a native of Moulmein, whose portrait appears at t. 6920 of the *Botanical Magazine*.—R.A.R.

Zygopetalum Prainianum.—At the R.H.S. meeting held on September 8th last a striking Zygopetalum was exhibited by Messrs. Sander & Sons, St. Albans, for which the above name was suggested. It is said to be an introduction of M. Forget, probably from some part of Peru, and most resembles Z. Burkei, Rchb. f., in general character, differing, however, in having longer pseudobulbs and broader leaves, and more obscure green markings on the petals. The lip is very similar in shape, and the colour white, with light purple lines on the ridges of the crest. The sepals and petals are dusky brown, and the petals similar, with obscure green markings near the apex. The plant is now at Kew.—R.A.R.

CATTLEYA GUTTATA.

THE original Cattleya guttata, Lindl., is not often found in cultivation now, being replaced by the finer C. Leopoldii, and it was interesting to see a good plant of it bearing a spike of fourteen flowers in the group exhibited by Messrs. Stuart Low & Co. at the R.H.S. meeting held on September 22nd last. The species was described and figured by Lindley in 1831 (*Bot. Reg.*, t. 1406), the author remarking: "This beautiful species was sent to the Horticultural Society from Brazil by the Right Hon. Robert Gordon. The spotting of the flower is remarkably different from anything that has yet been seen in the genus." A remarkably fine specimen of it, bearing no fewer than 24 flowers on a single raceme, was exhibited at a meeting of the Society on December 6th, 1836, by Richard Harrison, Esq., Aigburth, near Liverpool, and was awarded a Silver Knightian Medal. This particular plant was figured in the *Transactions* of the Society in 1837 (ser. 2, ii, p. 177, t. 8). It had been grown by Mr. W. Perrin, in a compost of peat earth and potsherds in equal quantities, and had not been potted for three years. Lindley remarked that with the exception of an Aërides cornutum in the possession of Messrs. Loddiges it was the most noble specimen of this natural order of plants that it had been his good fortune to observe. In 1848 the species was again described by Ch. Morren, under the name of C. sphenophora (*Ann. de Gand.*, iv. t. 175). This is said to have been sent from Santa Catherina by Fr. Devos.

A plant of C. guttata flowered with Mr. John Day in 1870 (*Orch. Draw.*, v. t. 25), and Mr. Day remarked: "I bought this at Mr. R. Bullen's Sale at Stevens' in November, 1875, as C. Leopoldii, imported by him from Rio by Mr. Henry Blunt. It turns out to be all old C. guttata, which it so happens I have never drawn before, though the page has been reserved for it for 15 years. It is a very pretty thing, but there are now so many splendid Cattleyas that it meets with unmerited contempt. This flower is one of 20 flowers, forming a dense head of bloom, which is the finest I have ever seen."

EPIDENDRUM PORPAX.—A very interesting little Epidendrum, received from Mr. C. H. Lankester, Cachi, Costa Rica, is now flowering at Kew. which has been identified from description with Epidendrum porpax, Rchb. f., a species described as long ago as 1855 (*Bonplandia*, ii. p. 220), as a native of Nicaragua, where it was collected on Mount Pantasma, Segovia River, by Oersted. It is a dwarf plant, closely allied to E. Matthewsii, Lindl., and bears numerous short stems, about two inches high, with oblong

leaves about half an inch long, and solitary terminal flowers, with a broad, purple lip and much paler sepals and petals. The plant is grown on a block, and is flowering very freely, producing 28 flowers. It is curious that it should have remained so long almost unknown.—R.A.R.

ORCHID NOTES AND NEWS.

THE Royal Horticultural Society announces that the pressure of recruits upon the War Office at the present time renders it necessary that the Hall of the Society be placed unreservedly at the disposal of the Government, for drilling and billeting the troops. The Society has found it impossible to secure other suitable accommodation for the fortnightly exhibitions, and the Council has therefore decided to abandon them for the present. The Committee, however, will continue to meet fortnightly at the specified dates and times, to consider plants, &c., submitted for Certificate. When it is found possible to recommence the shows notices will appear in the press. The next meetings are arranged for October 6th and 20th, and November 3rd, when the Orchid Committee will meet at the usual hour, 12 o'clock noon.

The next meeting of the Manchester and North of England Orchid Society will be held at the Coal Exchange, Manchester, on October 15th. The Committee meets at noon, and the exhibits are open to the inspection of members and the public from 1 to 4 p.m.

The fourth International Botanical Congress, which was to have been held in London from May 22nd to 29th, 1915, and of which particulars have already been given (see page 133), has been indefinitely postponed owing to disorganisation caused by the War.

Mr. G. I'Anson, formerly with Messrs. Hugh Low & Co., and afterwards with Messrs. Charlesworth & Co., who left this country over a year ago, and has since been with the Julius Roehrs Co., Rutherford, New Jersey, has accepted service with Mr. Thomas Young, Beechwood Heights Nursery, Bound Brook, N.J., an establishment where Orchids are extensively grown for cut flowers.

Flowers of the striking hybrid Cattleya Gladys (C. Atalanta × C. Dowiana aurea) are sent by Messrs. Sander & Sons, St. Albans. They are most like the C. Dowiana aurea parent, having clear yellow sepals and petals, and an entire, dark purple-crimson lip, with some yellow veining in the throat. It is possible that the C. Atalanta parent will come out better in other seedlings from the same batch. A second is C. Murillo, an

interesting hybrid between C. Maronii and C. Dowiana aurea, having much of the general character of the latter.

A remarkably fine specimen of Miltonia candida is now flowering in the Kew collection, bearing 32 spikes, and an aggregate of over 150 flowers, producing a fine display.

ORCHID PORTRAITS.

BRASSOLÆLIA MRS. M. GRATRIX.—*Orch. World*, iv. p. 278, fig.
CALANTHE LENTIGINOSA.—*Orch. World*, iv. p. 284, fig.
CALANTHE VEITCHII.—*Orch. World*, iv. p. 283, fig.
CALANTHE VERATRIFOLIA.—*Orch. World*, iv. p. 282, fig.
CATTLEYA SYBIL VAR. LORD KITCHENER.—*Gard. Mag.*, 1914, p. 704, fig.
CYPRIPEDIUM NIOBE.—*Orch. World*, iv. p. 276, fig.
CYPRIPEDIUM SHILLIANUM.—*Orch. World*, iv. p. 277, fig.
DISA VEITCHII.—*Orch. World*, iv. p. 275, fig.
LÆLIOCATTLEYA APHRODITE.—*Journ. Hort.*, 1914, ii. p. 213, fig.
MILTONIA VEXILLARIA ALBESCENS.—*Gard. Mag.*, 1914, pp. 701, 704, fig.
ODONTIODA COOKSONIÆ FOWLER'S VAR.—*Orch. World*, iv. p. 266, fig.
ODONTOGLOSSUM ARDENTISSIMUM NORMAN COOKSON.—*Journ. Hort.*, 1914, ii. p. 187, fig.
ODONTOGLOSSUM ARDENTISSIMUM VIOLETTE.—*Orch. World*, iv. p. 267, fig.
ODONTOGLOSSUM WILCKEANUM SCHRŒDERIANUM.—*Journ. Hort.*, 1914, ii. p. 186, fig.
VANDA AMESIANA.—*Orch. World*, iv. p. 268, fig.
VANDA SANDERIANA.—*Journ. Hort.*, 1914, ii. p. 199, fig.

ANSWERS TO CORRESPONDENTS.

[*Orchids are named and questions answered here as far as possible. Correspondents are requested to give the native country or parentage of plants sent. An* ADDRESSED *postcard must be sent if a reply by post is desired (abroad, reply postcards should be used). Subjects of special interest will be dealt with in the body of the work*].

B.—There is, fortunately, an older name. Such names are utterly unsuitable, except as varietal names, and their incongruity is apparent as soon as varietal names have to be added to them.

G.H.—Oberonia myriantha, Lindl.

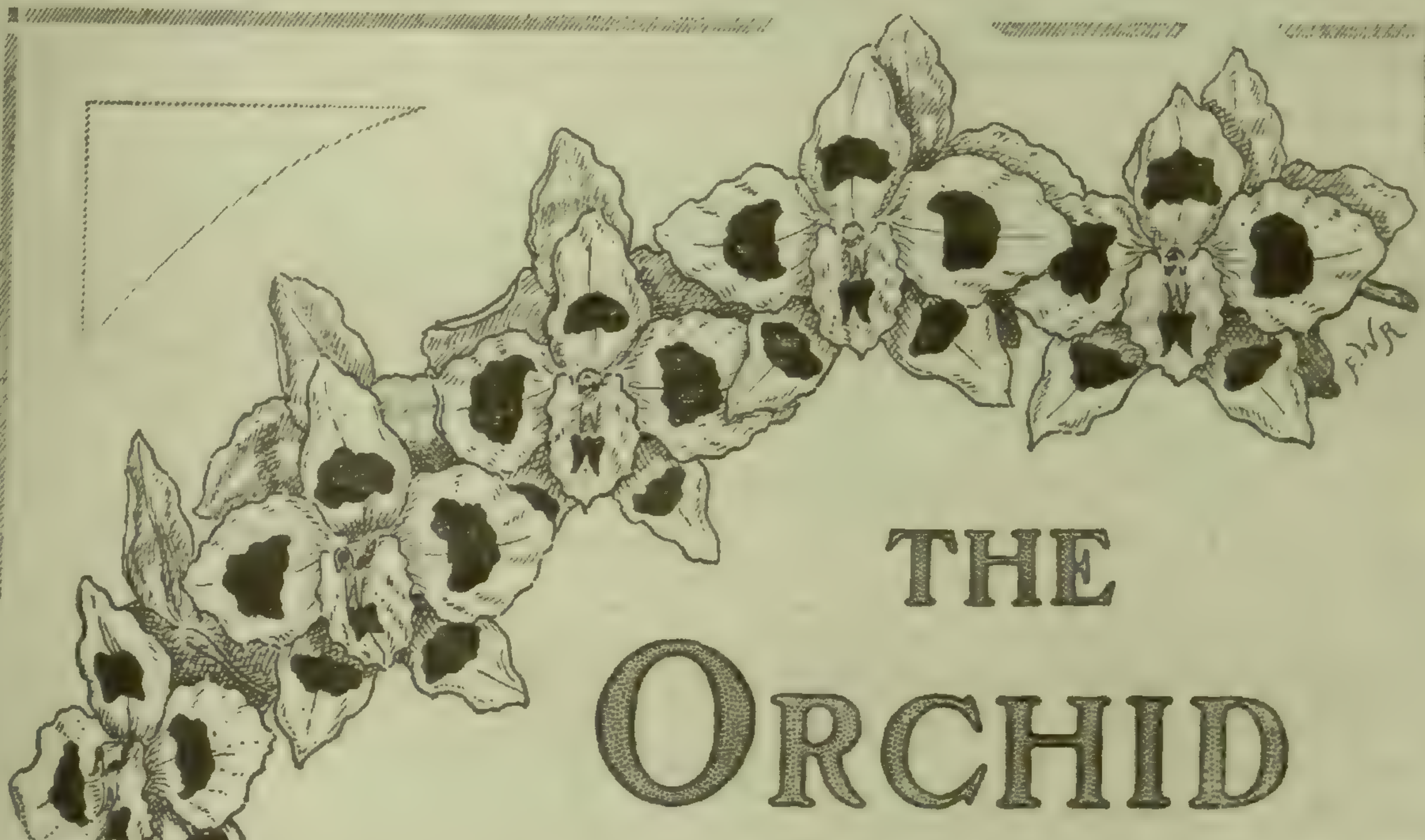
C.T.—Lycaste macrophylla, Lindl., a widely-diffused and variable species.

E.C.—Sarcanthus filiformis, Lindl.

G.R.F.—Many thanks. A note is held over until next month.

Photographs of novelties, &c, suitable for reproduction, would be very acceptable. They should be printed on smooth paper, with a well-contrasted background.

VOL. XXII NOVEMBER, 1914. No. 263.



THE ORCHID REVIEW

Edited by R. ALLEN ROLFE, A.L.S.

CONTENTS:

	PAGE
Amateur's Collection	336
Answers to Correspondents	352
Calendar of Operations for November	330
Catasetum macrocarpum	334
Dendrobium formosum giganteum ...	324
Dendrobium pinifolium	347
Dichæas from Costa Rica	349
Houlletia Wallisii	329
Laelia pumila alba	348
Obituary	349
Frank Cypher	349
John Gould Veitch	349
Odontoglossum Uro-excellens ...	351
Odontonia Magali-Sander var. xanthotes	337
Oncidium Leopoldianum	345
Orchid Notes and News	349
Orchid Portraits	352
Orchid Sales	328
Orchids at Kew	349
Orchids from Stamford Hill	348
Orchids in the War Area	347
Our Note Book	321
Societies	338
Manchester and North of England Orchid	342
Royal Horticultural	338

ILLUSTRATIONS.

Dendrobium formosum giganteum ...	324
Houlletia Wallisii	329
Odontonia Magali-Sander var. xanthotes	337
Oncidium Leopoldianum	345

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The Orchid Review

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OUR NOTE BOOK.

IT is fortunate that no Show of Autumn-flowering Orchids had been fixed by the R.H.S. for the present year, for the meetings have been completely disorganised by the war. The announcement last month that until further notice all Shows had had to be abandoned, and that only the Committees would meet to adjudicate on plants, &c., submitted for Certificate, was received with disappointment, and we were naturally surprised on attending the meeting on October 6th to find the Hall well stocked with exhibits. The fact is that after the notice of abandonment had been issued the authorities agreed, unless unforeseen events should arise, to liberate the Hall in future, and there was just time to send a hurried notice to exhibitors, but the alteration was not generally known, and consequently very few visitors put in an appearance. The attendance was somewhat better at the following meeting, so that we hope matters will now follow a more normal course.

At the first meeting the Orchid exhibits were rather choice than numerous, for three of them gained First-class Certificates and two Awards of Merit. All of them were hybrids, affording evidence that the march of improvement goes steadily on. At the following meeting a beautiful albino of Lælia pumila received a First-class Certificate, suggesting further possibilities for the hybridist now that albino Cattleyas are so numerous. We do not know if any seedlings of L. pumila alba are in existence, but eighteen years have elapsed since the albino made its appearance, and there are some interesting hybrids from the type.

Our attention has been called to a paper entitled, "Common sense and Common nonsense in the naming of plants," which was read at a meeting of the Horticultural Club by the late Mr. Shirley Hibberd in 1890. We find a report in the *Journal of Horticulture* (1890, i. pp. 462-464), but it is difficult to see to what the paper leads. Orchidists, however, come in for

some hard knocks, and it may be interesting to recall what was said about us nearly a quarter of a century ago.

"The greatest sinners against propriety in naming plants," Mr. Hibberd remarks, "are the Orchidists, for they ignore all settled rules, they repudiate the requirements of common sense, they make a law for themselves which they do not define, and which, whenever they do define it, will convict them of frequent and flagrant violation. We must wait for the report of the Committee that has taken the subject in hand, and has been toiling almost time out of mind, and meanwhile pray that they will not vex the shade of Linnæus to the extent of compelling him to get out of his grave to terrify the evildoers, but if they follow the example of Reichenbach it will be impossible to predict to what it may lead them. The great Orchidist was a notorious splitter and species maker, but his followers in this country accepted all his decisions without question, and never wavered in faith until the man was dead; then, finding that he had resolved we should not have his collection, his worshippers made the sad discovery that he was but a wooden god after all, but being dead and buried they were denied the gratification of knocking him to pieces."

As to names in general, Mr. Shirley Hibberd remarked: "Whoever will explore this field of labour will assuredly discover that good names are better than bad names, and that names alone, as such, have a literary and scientific value proportionate in their correspondence with the requirements of common sense. A man who coins a name contributes to the language of the world, and the world has some right to a voice in the matter. And you will ask me what I mean by common sense in this connection. In a general way I will answer, compliance with the Linnean method, but I must, in the interest of common sense, propose to you that we may with advantage build upon the Linnean foundation, so as to carry the edifice a few storeys higher. And our building must be after a design that needs no explaining, with materials of the simplest character. For example, Linnaeus admitted commemorative names, and they might even now be allowed were common sense in the ascendant; but it is not, and commemorative names have of late years been employed with such a lack of discrimination that the abuse suggests a necessity for their total abolition." He then cites a remark that "commemorative names at least give us a scrap of information in botanical history," and adds, "A scrap it is, for which we pay an exorbitant price, the commemorative system having been assiduously developed into an intolerable nuisance."

But geographical names do not escape criticism, for it is remarked that

they are, as a rule, not good. Many plants found in Japan and named japonica, are also found in China, and species that inhabit both the old and new world cannot with any propriety have geographical names assigned to them. He had found in a volume of the *Botanical Magazine* figures of sixty-six plants, of which no fewer than twenty-eight derive their specific names from places or persons. And he adds, "If books of authority like the *Botanical Magazine* are thus open to animadversion, what shall we say of trade catalogues? What shall we say? I quit the unwelcome theme, and leave the trader in plants at his own free will to commorate his relations, friends and customers *ex officio*, for the simple reason that we are not bound to trade names, but we are bound to . . . names that come to us with the stamp of authority." Double names were equally taboo, and examples were given with comments on what further crossing would lead to. In fact, it was remarked, "the raising of hybrid Orchids has brought about a curious crisis in hybrid nomenclature, and the binomial system may be said to be nowhere in face of the new army of facts."

Mr. Shirley Hibberd expressed a decided preference for descriptive names, and he submitted that "while the binomial system suffices for all ordinary purposes it should be maintained in its original integrity," the use of supplementary names being only allowable as representing varieties, and these "may be framed on a variety of plans with almost unlimited latitude, consistent with propriety and convenience," and such liberty must be allowed in naming varieties, and especially garden plants. For florists' flowers descriptive names were seldom necessary, but in the case of varieties having somewhat of the solidity and permanence of species they were immense aids to identification. And here the lecturer related a personal experience which may conclude our summary. In full persuasion of the utility of such a system, he bestowed much care in the classification of the Ivies, and published a monograph, in which he adopted or invented descriptive names for all the varieties he could obtain, abolishing the personal names without hesitation. And he adds: "The world did not accept my proposals with joyful thanks, for in truth I was pretty freely abused in the papers for altering the names. But I allowed it to pass without complaint, and now there is a growing tendence to admit that common sense may by gracious permission have something to do with the naming of garden plants."

The story was written nearly a quarter of a century ago, and a note is appended: "Report of Orchid Nomenclature Committee was issued simultaneously with the reading of the paper." But Shirley Hibberd did not live to write the sequel.

DENDROBIUM FORMOSUM GIGANTEUM.

SOME time ago a well-flowered pseudobulb of the handsome Dendrobium formosum giganteum was sent by Messrs. Stuart Low & Co., who pointed out its distinctness from the old stout-bulbed type, and suggested that a history of the variety would be interesting. We have also included an account of the other known varieties.

The earliest mention of D. formosum giganteum that we have found is in 1866 (*Flore des Serres*, t. 1633), where its introduction is attributed to Messrs. Hugh Low & Co., though its native country is not mentioned. In 1879 it was figured in the *Orchid Album* (vii. t. 308), where it is said to have been originally introduced by Messrs. Hugh Low & Co. about the year 1856, from Rangoon. Somewhat later another figure appeared (*Gard. Chron.*, 1882, i. p. 369, fig. 54), where the habitat is briefly indicated as the Eastern Himalaya. It is now generally considered that D. formosum giganteum is the Burmese form of the species, but there is evidence that the short-bulbed form also grows in Burma, and it is not certain that the two can always be distinguished geographically. Colonel Benson, in 1870, called the Burmese plant simply D. formosum (*Gard. Chron.*, 1870, p. 763), and remarked :—

"I have never observed it growing at any elevation worthy of notice among the plains, or at any great distance from the sea. . . . The favourite habitat for D. formosum is on trees growing on a laterite soil, as Dipterocarpus lævis and a species of Dillenia. This plant does not seek shady places for growth, in fact, so far as my knowledge goes, few Orchids do, beyond what is given by the trees when in leaf. During the months of February, March, and April they must be exposed to an atmosphere of 110° Fahr. in the shade."

There is also a painting made by Mr. John Day in July, 1876 (*Orch. Draw.*, xix. t. 69), made from a plant purchased at Stevens' Rooms about a year earlier, and of which Mr. Day remarks: "I have no doubt it came from Burma." He then compares it with the Assam form, which he says is a smaller plant with shorter bulbs and smaller flowers, but of more perfect form. In fact, this figure represents D. formosum giganteum, though not so labelled.

The best account of this variety that we know of is by the late Major-Gen. E. S. Berkeley, published at pp. 137, 138 of our second volume. He remarks:—

"Of all the hundreds of varieties of Orchids that grow in the neighbourhood of Moulmein, the first to attract attention is Dendrobium formosum. The variety which grows here is that known by the gardeners as

'giganteum.' Of all the Nigro-hirsute Dendrobiums this bears the largest flowers, and is the most popular.

"At almost any time of the year, in Moulmein, but more especially

Fig. 41. DENDROBIUM FORMOSUM GIGANTEUM.

during the rains, the traveller will meet the Burmese, bamboo on shoulder, bearing two baskets full of the flowers of this favourite Orchid to the Moulmein market, always coming from the direction of Amherst, which is the richest locality for this plant. The flowers are cut off and brought in with a portion of the stem, and so rapid is the growth during the rains that from the base of the cut stem two new shoots will arise which will produce flowers some months later during the same year.

"Dendrobiums of the Nigro-hirsute group, called by the botanists section Formosæ, are not always a success in England, which is not to be wondered at, as most of the varieties grow under very varying conditions. By giving the character of the districts in which the several forms grow, and the special conditions of temperature and rainfall, it is possible that some useful hints may be gathered, and may help growers to make the cultural conditions of the various forms of this section in this country agree more nearly with those of the various localities in which they grow.

"To begin with this Moulmein form of D. formosum, the commonest of all the forms imported. I have frequently gone out on an elephant to the low-lying hills on the Amherst Road, and gathered the plants that were within reach with very little trouble. These plants I invariably found growing under the same conditions, generally on the branches of the trees where they got abundance of light, heat, and moisture, frequently on the extreme tops of the trees, in full flower and fully exposed to the sun. It's rays had apparently no burning effect on them during the rains, and the flowers were as delicate and as firm as if no heavy rain had had a chance of dashing them to pieces. This firmness of the foliage and flowers I attribute to the very airy position in which they grow, so that the great moisture caused by the heavy rain dries up quickly.

"It is true that during the dry months, January, February, and March, the plants get much dried by exposure to the hot sun, and often lose their leaves, especially on the old stems, but the new growths continue to develop, nourished by the night dews, which in the neighbourhood of the sea are very heavy.

"The season of rest this Orchid enjoys is very short, at most two months, January and February, and hence the difficulty we find in dealing with it in our glass houses in England. It must also be remembered that this plant grows throughout the year, not only in a very hot atmosphere, but in a bright clear air, invariably charged with moisture.

"Dendrobium formosum is widely distributed from the Khasia Hills down to Tavoy, but it is principally at Amherst, and along the coast between that place and Tavoy, that the variety giganteum is found.

"Although the flowers of the Moulmein variety, the one that now invariably comes home, are larger than those of any other variety, they

are not so perfect in shape as some of the more northern forms, which have smaller flowers."

The illustration on page 325 (fig. 41) shows a fine specimen of D. formosum giganteum, that was grown in the collection of Lt.-Col. Sir George L. Holford, K.C.V.O., at Westonbirt, by Mr. H. G. Alexander.

DENDROBIUM FORMOSUM itself has been known in cultivation for over 70 years, having been introduced from the Khasia Hills by Gibson, who sent it to Chatsworth in 1837, where it flowered in May of the following year, and was figured in the *Botanical Register* (xxv. t. 64). Lindley then remarked: "As a white-flowered epiphyte it is almost unrivalled among Asiatic Orchidaceæ, the Phalænopsis amabilis being the only one that can enter into comparison with it." The species was originally described in 1832 by Roxburgh (*Fl. Ind.*, iii. p. 485), who found it on trees in the forests of Sylhet and in the Garrow Hills, flowering in April and May. It also occurs in Sikkim, where, according to King & Pantling, (*Orch. Sikkim*, p. 47, t. 65), it is common at the base of the Himalayas, flowering in May. It ranges westwards to Nepal.

The Indian type, which is now largely replaced in gardens by the Burmese var. giganteum, was well known to Mr. John Day, who remarked: "I received a great many plants in 1867 and 1868 of this glorious Dendrobium—rightly named formosum—from my nephew, W. J. Williamson. They were collected in the Khasia Hills" (*Orch. Draw.*, ii. t. 67). A second figure was made in October, 1883 (*l.c.* xxxix. t. 1), and this was from an imported plant, "purchased at Stevens' about a year ago," and Mr. Day added: "This is the Indian variety, and though not so large as the Burmese, I like it better, as it is more compact, and the bulbs too." It has the short stout bulbs generally supposed to distinguish the type, but they are equally short in the Moulmein form figured by Parish (*Orch. Draw.*, i. t. 46), on which Mr. Parish has written: "The finest Orchid I ever drew. Most abundant all round Moulmein. Basket-loads are continually brought into the Bazaar. 'Guway-bau,' or Silver Flower, of the Burmese."

D. FORMOSUM VAR. BERKELEYI.—Another variety was described by Reichenbach in 1882, under the name of D. formosum var. Berkeleyi (*Flora*, 1882, p. 534). The locality was vaguely given as an island of British India. Shortly afterwards another note appeared (*Gard. Chron.*, 1882-1883, i. pp. 110, 210), as follows: "Once more one of those local types like those so often seen in Cattleyas. It is a very elegant plant, with the remarkable quality of flowering very young from its terete growths, and very freely. As if not to excite jealousy of the other varieties, the plant has been deprived by nature of scent. Its flowers are smaller, petals shorter, the lip narrower, clasping the column. The signature of orange

on its middle line is the same, but there are fewer asperities. The chin would appear to be shorter. It is a discovery of Colonel Emeric J. Berkeley, whose name it justly bears."

A fine specimen was sent to Kew in October, 1882, and a letter explains that he brought the plant from the Andaman Islands, and that the locality could be stated without objection. Reichenbach's plant, it is added, must have come from Dr. Heine, to whom plants had been sent about twelve months earlier. Of this variety Major-General Berkeley wrote:—

"For perfection of form the variety found in the Andamans is much the best. This plant, sent home by me for the first time about 1881, was described by the late Prof. Reichenbach in the *Gardeners' Chronicle* as variety Berkeleyi. I first found this fine variety in great abundance at Casuarina Bay, South Andaman. The shape of the flower is more like that of D. infundibulum, the sepals and petals being in a perfect whorl and not with lax petals, as in the common Moulmein plant. This perfection of form adds great beauty to the plant, which is also distinguished by the exceedingly rich colour in the throat, at the base of the lip, which varies from rich orange to the brightest red. This variety is widely distributed throughout the group of islands composing the Andamans, and appears to like the sea air, as I have frequently found it growing on mangrove trees on the sea coast, unapproachable at high tide."

D. FORMOSUM VAR. SULPHURATUM.—One other variety remains to be noticed, which was described by Reichenbach in 1882 (*Gard. Chron.*, 1882, ii. p. 437), as follows: "Dendrobium formosum var. sulphuratum, Hook.—An elegant variety. The front of the lip, in lieu of being of the richest orange colour, shows a very clear sulphur yellow. 'It is the only plant seen by our collector in Upper Burma,' is the remark of Messrs. Heath & Son, Exotic Nurseries, Cheltenham, when sending to me a couple of giant flowers." The reference to "Hooker" is not clear, but there is an unlocalised drawing in the Kew collection with a sulphur yellow disc to the lip which represents a similar colour variation.

ORCHID SALES.—On October 9th Messrs. Protheroe & Morris held their first sale of Orchids for the winter season at their Central Sale Rooms. The Catalogue included a good selection of showy species of Orchids from Messrs. Sander & Sons, and hybrids from the St. Albans and other firms. There was a good attendance of Orchidists, and though prices ruled low a fair amount of business was done. The great attraction of these sales is the fine and varied show of Orchids in bloom, both hybrids and species. On this occasion there was a good display of Cattleyas, Læliocattleyas, and Odontoglossums, but the most effective plants were some finely flowered specimens of the old Odontoglossum grande.—*Gardeners' Chronicle.*

HOULLETIA WALLISII.

THE annexed figure represents the interesting Houlletia Wallisii, which has re-appeared in cultivation. The species was originally described over forty years ago (Linden & Rchb. f. in *Gard. Chron.*, 1869, p. 611), the only clue to its origin that was given being the remark that it was dedicated to its energetic and happy discoverer. Two years later it was again described and figured, under the name of H. chrysantha (Linden & Andre in *Ill. Hort.*, xviii. p. 138, t. 71), from a plant which flowered in the

Fig. 42. HOULLETIA WALLISII.

establishment of M. J. Linden, Brussels. It is said to have been collected by Wallis, in the province of Antioquia, New Granada, in 1868. In 1877 H. Wallisii var. odontoptera was described by Reichenbach (*Linnæa.* xli. p. 111), from flowers collected at 8000 feet elevation at Frontino, by Wallis, which had been preserved in spirit at Kew, and the author then pointed out that H. chrysantha was only a synonym of the earlier H. Wallisii. This note was probably overlooked, for somewhat later a plant flowered at Kew, and a note and woodcut were published under the name of H. chrysantha (N. E. Brown in *Gard. Chron.*, 1882, ii. p. 437, fig. 73).

The species was then lost sight of for a long period, but in 1911 a plant flowered in the establishment of Messrs. Charlesworth & Co., Haywards Heath, which they had obtained from the Cattleya Dowiana district, and was identified as the missing plant (*O.R.*, xix. p. 271). Soon afterwards it was exhibited at a meeting of the R.H.S. bearing a fine inflorescence of seven flowers, and received an Award of Merit (*Gard. Chron.*, 1911, ii. p. 177, fig. 84). A year later Messrs. Charlesworth also exhibited a fine plant bearing four spikes of flowers (*O.R.*, xx. p. 288). H. Wallisii is a distinct and striking species, and bears erect spikes of deep buff-yellow flowers, with numerous red-brown blotches on the sepals and petals, and in some cases a blackish red blotch on the base of the lip. Its re-appearance is interesting. For the loan of the block we are indebted to the courtesy of the Editor of the *Journal of Horticulture*.

R.A.R.

CALENDAR OF OPERATIONS FOR NOVEMBER.

By T. W. BRISCOE, Late Foreman of Messrs. Veitch's Hybridising Department.

DURING the month of November the temperatures should be the same as advised in our last issue, and little change will be necessary in regard to watering, ventilation, &c. A sharp eye, however, must be kept on the stoker, or extremes in temperature are sure to occur. A dry, desert-like atmosphere, which is caused by excessive fire-heat, must be prevented, while a low temperature when the houses are heavily charged with moisture should also be avoided.

FOGS.—We expect dull weather at this period of the year, with perhaps an occasional fog, which does irreparable damage to the flowers of Dendrobiums, Lælia anceps, and especially to Calanthes, while even the foliage suffers where collections are near large cities. When foggy weather occurs all the ventilators must be closed, and the temperatures should be kept normal. This will enable the grower to do the usual damping down, and thereby help to keep out the fog. When the visitation has passed, the outside glass must be washed, also any of the plants that need it. Slight frosts may also be expected, particularly in northern districts, and where lath-roller blinds are employed they will be very helpful in keeping the temperatures even, and in saving fuel.

PLEIONES.—At this season very few Orchids need attention so far as repotting is concerned, but the Pleiones, such as maculata, lagenaria, and Wallichiana, which will soon pass the flowering stage, may be repotted. The flowers are produced with the new growths, and as soon as the flowers are removed a batch of new roots is produced at the base of the growths. Shallow pans are the most useful receptacles, which should

be filled one-third of their depth with drainage. The compost should consist of good fibrous peat or polypodium fibre, the best yellow fibrous loam, and sphagnum moss in equal parts. A sprinkling of sand may be added, and where the plants do not succeed a few partly-decayed oak leaves may be incorporated with advantage. Pans of various sizes may be chosen, and the largest bulbs can be planted two inches apart. It is advisable to grade the bulbs, then the largest are arranged together, and the smaller ones, which perhaps will not flower, can be placed in different pans. By adopting some such method examples are secured which will be a mass of flower in due season. At the present time each pan should be suspended or placed on a shelf fairly near the glass, where the average temperature is about 60°, and sufficient water should be given to keep the soil moist. As root action increases, and the leaves begin to expand, water may be afforded more frequently, and the plants kept well supplied until growth is completed. To prevent the appearance of red-spider the foliage ought to be sponged over at intervals with a weak solution of some reliable insecticide.

VANDAS belonging to the V. suavis group ought only to be repotted when real necessity arises, because as a general rule they lose a certain number of leaves, however carefully the operation is performed. When repotting should be done is a debatable point, some growers advocating November and others early spring. I have tried both, and have found that there is little to be said in preference for either. Only those specimens that have lost their lower leaves will need attention, and enough of the stem must be removed to allow the foliage to reach the top of the pot. Ample drainage must be supplied, and as the mixture of fibre and sphagnum moss is being placed among the roots, a few broken potsherds or nodules of charcoal can be introduced, so as to render the whole porous. Each stem must be made secure, and the compost should be lightly sprinkled with water whenever it becomes dry. A temperature of 60° to 65° should be maintained.

SLUGS.—These marauders are always more or less busy, but more so when the nights are long. They soon play havoc among the seedlings and the new roots of older plants. For this reason all specimens that are completing their pseudobulbs and are about to push out a cluster of succulent roots should be watched, while choice examples may be protected by standing the plant on an inverted flower pot which has been placed in a saucer of water. Where slugs are numerous the usual and most effective plan is to hunt for them with a good lamp.

EPIDENDRUM VITELLINUM.—The autumn-flowering variety of this species certainly deserves to be grown in quantity, for its erect scapes of cinnabar-red flowers make a pleasing contrast with the various Odonto-

glossums. The plants should be well supplied with water until the spikes are removed, when a partial rest is allowed.

EPIPHRONITIS VEITCHII.—This charming hybrid may almost be termed a dwarf form of Epidendrum radicans. It requires much the same treatment as that species, but it succeeds best if given a light position among the Cattleyas. Frequent propagation is necessary to keep up a healthy stock, and from twelve to sixteen growths make nice compact specimens. During the winter months no overhead spraying will be needed, and the atmosphere must be fairly dry or the spot disease will appear.

ODONTOGLOSSUM GRANDE.—The climatic conditions under which this fine Odontoglossum is found growing in its native country renders the culture slightly different from the Colombian species. A higher temperature is necessary, and a period of rest is essential. Although during the summer months it may be grown in the Cool house, the cold moist atmosphere is not to its liking during the winter, and therefore where the Cool house treatment is followed it is advisable now to remove the plants to the Cattleya or Intermediate division. The same remarks apply to O. Insleayi, O. Rossii, O. Schlieperianum, and O. Cervantesii.

ODONTOGLOSSUM CITROSMUM will now be finishing up its pseudobulbs, and, when they are thoroughly matured, water should be afforded only at rare intervals until the spikes are produced from the new growths.

CŒLOGYNE CRISTATA AND ITS VARIETIES.—These useful Orchids will now be completing their growth, and after a short rest a few of the plants will begin to push out their flower scapes. When this stage is reached very careful handling of the water-pot will be needed, or the spikes will decay in the new growth. For the present enough moisture should be afforded to keep the pseudobulbs rigid. If the foliage is attacked with scale now is a good time to remove it.

DECIDUOUS DENDROBIUMS of the spring-flowering group have now completed their growth, and water must be afforded in moderation for the next few months. No shrivelling of the pseudobulbs must be permitted through lack of moisture at the base, and the plants should be kept fairly cool, while any fluctuation of temperature always has a tendency to promote premature growth. This kind of growth, however, is almost inevitable with some species, particularly D. Wardianum, but if the plants are kept on the dry side, and given all the light possible, no harm will accrue. Among the first to push out their flower buds will be D. aureum and its hybrids, but it is not advisable to place them in strong heat at once. The change from the resting house to the Warm division should be gradual, or many of the buds will turn yellow and decay. With the exception of the above species, few will be showing signs of flowering before January or February.

DENDROBIUM PHALÆNOPSIS AND D. FORMOSUM GIGANTEUM will be

making a nice display, and after the scapes are removed a rest of several months' duration should be allowed in an average temperature of 60° F. The atmosphere should be kept tolerably dry, and sufficient water given to maintain the stems in a rigid condition.

DENDROBIUM INFUNDIBULUM and D. JAMESIANUM.—These have been regarded by some authorities as alpine forms of D. formosum, and they require cultural treatment in accordance with the higher altitude and lower temperature which they experience in their native habitat. For the summer months they are best accommodated in the Cool house, but at other times the Intermediate division should be chosen. They are evergreen, and water must not be withheld for any great length of time.

DENDROBIUM DEAREI.—This beautiful summer-flowering Dendrobe should now be given every encouragement to make free and healthy growth. It is a Warm house subject throughout the year, and ought never to suffer from drought. At this period a light position is essential. Some good examples have been seen in the ordinary plant stove, while it has occasionally failed in the orthodox Orchid house.

EVERGREEN DENDROBIUMS.—Dendrobiums of this section, such as thyrsiflorum, densiflorum, pulchellum, and fimbriatum should be rested in the Cattleya house when their growth is completed.

DENDROBIUM SEEDLINGS will need water more frequently than older plants, but it must not be overdone, or the roots will decay. Any repotting must now wait until the days begin to lengthen. In the meantime keep them in a temperature of 60° F.

CYPRIPEDIUMS.—These interesting and showy winter-flowering plants are now in full beauty, and will continue to make a nice display well on into the new year. Perhaps Cypripediums generally are not so popular as hitherto, but the best of the hybrids still appeal to a large number of growers, while C. insigne and its numerous hybrids are cultivated in many establishments for a supply of cut bloom at Christmas time. As fog resisters Cypripediums have no equal, and this fact should commend them to amateurs and others living near large towns. Each plant must be kept moist at the root, for when once the leaves are allowed to lose their fresh and plump appearance through lack of water they rarely if ever recover. If the foliage is sponged over, the pots made clean, and the flowers tastefully arranged, a much more pleasing effect is produced.

VANDA CŒRULEA.—When this gorgeous Vanda passes the flowering stage the plants can be arranged in the Cattleya house, if a division is not set apart for them. Very little water will be needed, but sufficient must be given to prevent the foliage from shrinking. Due attention must be paid to ventilation and atmospheric moisture, or the leaves will soon be disfigured with the spot disease.

CATASETUM MACROCARPUM.

CATASETUM macrocarpum is one of the commonest of cultivated species, but very few plants of it have such an interesting history as one in the collection of G. Rae Fraser, Esq., Piggott's Manor, Letchmore Heath. This has been recorded by Mr. Fraser in his "Caribbean Notes," which appeared some time ago in the *Aberdeen Journal*, as follows:—

"THE VERSATILE ORCHID."

"Amongst the acquaintances I made in 1908 at the Queen's Park Hotel was Mr. De Courcy Hamilton, who had gone to Trinidad to report upon some Cocoa estates. In a plantation somewhere near the Pitch Lake he picked off a tree a monstrous Orchid bulb, with the intention of taking it home in the "Orinoco," but when we neared Southampton he got tired of it, and declared his intention of throwing it overboard unless I would care to have it. I was glad to take it, being curious to know what sort of a flower, if any, such a monstrosity would produce. I handed it over to my gardener, and for two years it produced nothing but leaves. It bloomed first in September, 1910, just in time to celebrate my daughter's wedding, but the sickly yellowish green flowers were so hideously eccentric that nobody would dream of using them for table decoration. I sent a specimen to the Royal Horticultural Society for identification, and they were so interested in it that they asked me to send the spike to the Museum at Kew. It proved to be the female flowers of the extraordinary Catasetum macrocarpum (otherwise known as C. tridentatum), which was supposed to produce male and neuter flowers also, differing so much from one another in appearance that, as Darwin points out in his work on the *Fertilization of Orchids*, the plants bearing them have been treated by botanists as three different species. This discovery led me to wonder whether my bulb on its second blooming would produce either a male or a neuter flower. It tried to flower in April and September, 1911, but on each occasion, through carelessness, the buds were destroyed by slugs. In September, 1912, it flowered successfully, and the bloom was again female. But, to my joy, in October, 1913, it produced an entirely different flower, rather attractive in appearance, which I handed to Mr. Rolfe at Kew, and he identified it as masculine. He was delighted to add it to the Museum collection, and expressed his intention to affix the spikes of the male and female flowers from my plant to the same mount. As my gardener had separated the original bulb into four, I gave two of these to Kew and retained the others, the newest of which had gone into bud just before I started for Jamaica. I hoped it might produce a neuter spike, but the result was only another

spike of masculine flowers, and to add to my disappointment I have since heard from Mr. Rolfe that the third sex is a myth."

"I called upon Mr. Freeman, the present superintendent of the Botanic Gardens at Trinidad, to tell him the history of my versatile bulb, and to ask permission to visit his Orchid house. He telephoned to his foreman, but somehow or other the message miscarried, and there was no one to meet me when I arrived at the gardens. I had, however, a most intelligent and loquacious negro cabby, who, when he heard the object of my visit, told me that he knew a good deal about Orchids, as he had been employed to collect them in Colombia, Venezuela, and Brazil, and he conducted me to the Orchid house, where I found quite a large collection of the bulbs of my particular Catasetum, one with a female flower and another in bud. He took me afterwards to the Orchid house of Mr. Andre, a famous collector, and there also I found several specimens of the interesting bulb, but not one in bloom. Trinidad is, I imagine, its sole or principal habitat."

The production of male and female flowers by this versatile plant has already been recorded in our pages *O.R.*, xx. p. 374; xxi. pp. 39, 383), and now the plant has gratified Mr. Fraser by producing a flower which is neither the one nor the other, and if not neuter in the sense of the term used by Darwin, it is as nearly neuter as the plant is ever likely to produce. This inflorescence produced three flowers, two of them females, but the third combined the general shape of the female with the presence of the antennæ of the column and the pollinia of the male, though in both cases smaller than in the normal male flower. It is thus hermaphrodite, but not the hermaphrodite described by Darwin, which Mr. Fraser naturally hoped to see. Such flowers, with neither sex perfect, are occasionally seen in the genus. This inflorescence is also being preserved at Kew.

Darwin's hermaphrodite was something quite different. That author remarked: "Botanists were astonished when Sir R. Schomburgk stated that he had seen three forms, believed to constitute three distinct genera, namely Catasetum tridentatum, Monachanthus viridis, and Myanthus barbatus, all growing on the same plant. Lindley remarked that 'such cases shake to the foundation all our ideas of the stability of genera and species.'" Darwin investigated these three forms, and came to the conclusion: "Myanthus barbatus may be considered as an hermaphrodite form of the same species of which the Catasetum is the male and the Monachanthus the female." He also figured the three, but Mr. Fraser will never find them all on the same plant. The unfortunate fact is that the females of three different Catasetums have been called Monachanthus viridis, Lindl. Darwin's supposed hermaphrodite is simply the male of Catasetum barbatum, Lindl., and his Monachanthus viridis the female of

the same. It is much smaller than the female of C. macrocarpum (tridentatum), which is shown at t. 1752 of the *Botanical Register*, and has again appeared with Mr. Fraser.

It may be added that C. macrocarpum occurs in Trinidad, British and French Guiana, Brazil, in the Bahia, Rio de Janeiro, Pernambuco, and Amazonian districts, and in Venezuela, in the latter occurring in company with C. Bungerothii, with which it is believed to intercross, yielding the remarkable polymophic C. splendens, whose history was given last month (pp. 316-317). R.A.R.

THE AMATEUR'S COLLECTION.

By C. ALWYN HARRISON.

THIS month is a somewhat trying one, as owing to the variability of the weather usually experienced in November it is often a difficult matter to maintain an even temperature. If possible keep the thermometer ranging between 55° to 60° by day, with a slightly lower degree of warmth during the night. Ventilate freely as external conditions permit, but if the weather is foggy no air must be admitted whilst this horror is loading the atmosphere. Immediately it clears off the roof glass should be washed.

Damping will now need to be considerably diminished. On dull days a single syringing of the staging and path will be sufficient, but if the weather is bright, twice a day may be found necessary, but nothing is more detrimental to the health of any Orchid than to be grown in a cold, damp atmosphere. If excessive atmospheric moisture be necessary, it must also be accompanied by a rise in the temperature.

In a garden devoted to the culture of all manner of plants, there will probably now be less outside work, and consequently more time can be spared for the houses. The present will be found a very desirable time for the cleaning of all the Orchid collections; scale especially may give trouble at this time. This is usually found on the rhizomes of the old bulbs, and concealed under the skin-like covering on the newer pseudobulbs, and is especially predominant on old Cattleya plants. The best method of eradication is to paint the affected parts with methylated spirit.

If any Orchids have not been repotted this season, but are in fairly good compost, it will be better to defer disturbing them until the following spring. Plants repotted in November and December often fail to re-establish themselves with the same vigour as those repotted in the spring. Lælia anceps will now be commencing to throw up its long flower spikes, and these should be neatly staked, and the plants kept just moist. Cattleya labiata, the very beautiful C. Fabia, and other C. Dowiana aurea hybrids will now be in their full beauty, and others too numerous to mention.

ODONTONIA MAGALI-SANDER VAR. XANTHOTES.

THE annexed figure shows the charming Odontonia Magali-Sander var. xanthotes, which was exhibited at the R.H.S. meeting held on October 20th last by Messrs. Charlesworth & Co., and to which an Award of Merit was given. It is a seedling from the same batch as that described at page 286 of our September issue, and its history is interesting. There is a plant of the rare Miltonia Warscewiczii xanthina in the collection of O. O. Wrigley, Esq., Bridge Hall, Bury, and this was crossed with the

Fig. 43. ODONTONIA MAGALI-SANDER VAR. XANTHOTES.

pollen of a fine Odontoglossum armainvillierense xanthotes supplied by Messrs. Charlesworth & Co. A good capsule resulted, and the seeds were germinated by Messrs. Charlesworth, and the resulting seedlings divided between the two establishments. The one previously described was the first of the batch to flower. The figure will show how much the general shape of the Miltonia parent has been retained, especially in the lip; the flower, however, is larger and the sepals and petals more acute. The ground-colour is cream-white, with greenish yellow markings, while the broad lip is cream-white, with a yellow crest and a broad zone of the same

colour in front of it. It has apparently a good constitution, and should develop into a very charming thing when the plant becomes strong. We are indebted to Messrs. Charlesworth & Co. for the photograph.

SOCIETIES.

ROYAL HORTICULTURAL.

THE Royal Horticultural Hall was, after all, available for the usual fortnightly meeting announced for October 6th, but afterwards restricted to a meeting of the Committees, for the military authorities at the last moment agreed to place the Hall again at the disposal of the Council. A hurried notice was therefore issued to exhibitors, which brought together a number of choice exhibits, but the attendance of visitors was very meagre, as the altered arrangements were not generally known. Orchids were not numerous, and only one medal was awarded to a group, but three First-class Certificates and two Awards of Merit were given to choice things.

Orchid Committee present: J. Gurney Fowler, Esq. (in the Chair), Messrs. J. O'Brien (hon. sec.), Gurney Wilson, W. Bolton, T. Armstrong, F. Sander, S. W. Flory, E. H. Davidson, A. Dye, W. H. White, R. Brooman White, C. H. Curtis, F. M. Ogilvie, F. J. Hanbury, R. G. Thwaites, J. Wilson Potter, R. A. Rolfe, Stuart Low, and Sir Harry J. Veitch.

T. J. Finnie, Esq., Claygate Lodge, Claygate, sent a small group of six Cattleya labiata, from plants brought by him from Brazil three years ago and since then grown very successfully. The forms were varied in colour, and one bore two spikes of four flowers each. A Bronze Banksian Medal was awarded.

Elizabeth Lady Lawrence, Burford (Orchid grower Mr. W. H. White), sent a very fine spike of Vanda Maroniæ (suavis × teres), bearing a dozen of its beautiful rose and white flowers. It is figured at page 209 of our eleventh volume.

J. Gurney Fowler, Esq., Brackenhurst, Pembury (gr. Mr. J. Davis), sent a form of Læliocattleya Thyone, and Cattleya Bronze-King (Davisii × Dowiana aurea), a promising form, most like the former in general shape, and having bronzy yellow sepals and petals, with reddish veining, and a darker, much veined lip.

R. G. Thwaites, Esq., Chessington, Streatham (gr. Mr. J. Hannington), sent Sophrocattleya Blackii vars. The Cardinal and Prince of Orange (S. grandiflora × C. Hardyana), two promising things, the former crimson-scarlet and the latter much more orange in colour.

Messrs. Charlesworth & Co., Haywards Heath, sent Oncidium bicallosum splendidissimum and O. bicallosum aureum, the former a particularly fine form, and the latter smaller but having the flowers almost entirely yellow. They also sent a fine example of Cœlogyne Veitchii, bearing two pendulous spikes of pure white flowers.

Messrs. Flory & Black, Orchid Nursery, Slough, sent a fine bright rose-coloured form of Brassocattleya Ilene, with a light yellow throat to the well-fringed lip.

Messrs. Hassall & Co., Southgate, sent a good form of Cattleya Venus, and C. Sylvia citrina (C. Fabia alba × C. Dowiana aurea), a pretty yellow form.

Mr. G. Little, Groomsbridge, showed a fine plant of Oberonia myriantha, bearing two long spikes of its curious brown flowers.

Messrs. Sander & Sons, St. Albans, sent Miltonia Bleuana General Joffre, a very fine form, with flowers four inches in diameter, and blush white, with the basal half of the petals rose, and some brown rays at the base of the lip.

FIRST-CLASS CERTIFICATES.

CATTLEYA PRINCESS-ROYAL (Fabia × Hardyana).—A magnificent hybrid, bearing a spike of three flowers, and having broad, rosy mauve sepals and petals, and a rich purple-crimson lip, with numerous yellow veins in the throat. Exhibited by J. Gurney Fowler, Esq.

CATTLEYA RHODA FOWLER'S VAR. (Iris × Hardyana).—A handsome thing, having flowers of good shape and substance, with broad, Indian red sepals and petals, and the lip entire, undulate in front, and ruby crimson in colour, with some yellow veining at the base. Exhibited by J. Gurney Fowler, Esq.

LÆLIOCATTLEYA MRS. EVELYN NORRIE (parentage unrecorded).—A large and handsome hybrid, bearing a spike of three flowers, with canary yellow sepals and petals, and a dark violet-purple lip, tinged with yellow in front and with some whitish basal lines. Exhibited by J. Gurney Fowler, Esq.

AWARDS OF MERIT.

CATTLEYA ANTIOPE (Chamberlainiana × Dowiana aurea).—A handsome hybrid, most like the latter in shape, and having cowslip yellow sepals and petals, with a purple-crimson velvety lip, lined with yellow at the base. —Exhibited by J. Gurney Fowler, Esq.

LÆLIOCATTLEYA BRITANNIA var. Melanie (L.-c. Canhamiana alba × C. Warscewiczii Frau Melanie Beyrodt).—A charming hybrid, most like the Cattleya parent in shape, and having well-shaped white sepals and petals, and the front lobe of the lip violet-purple, with a paler margin. Exhibited by Messrs. Charlesworth & Co.

At the meeting held on October 20th, the Orchids exhibited were rather more numerous, though below the average for the season, and the attendance was rather small. Two medals were awarded for groups, the other awards being one First-class Certificate and three Awards of Merit.

Orchid Committee present: J. Gurney Fowler, Esq. (in the Chair), Messrs. J. O'Brien (hon. sec.), W. Bolton, Gurney Wilson, S. W. Flory, G. Hunter, A. Dye, E. H. Davidson, W. P. Bound, H. G. Alexander, J. E. Shill, C. H. Curtis, W. H. Hatcher, J. Cypher, J. Charlesworth, Walter Cobb, F. J. Hanbury, R. A. Rolfe, C. J. Lucas, A. McBean, T. Armstrong, Stuart Low, and Sir Harry J. Veitch.

T. J. Finnie, Esq., Claygate Lodge, Claygate (gr. Mr. Frogley), sent good forms of Cattleya labiata, one of them a fine specimen bearing seven inflorescences, and an aggregate of twenty-eight flowers, forming a very effective picture.

Col. C. Francis Hayhurst, Bostock House, Middlewich (gr. Mr. A. H. Hall), sent Cypripedium Rolfei var. Col. Hayhurst (bellatulum × Rothschildianum), a vigorous plant, bearing a single flower with very dark veining on a cream-coloured ground.

His Grace The Duke of Marlborough, Blenheim Palace, Woodstock (gr. Mr. G. Hunter), sent Læliocattleya luminosa Blenheim var., a fine form, having bronzy yellow sepals and petals, and a broad violet-purple lip.

A. Meyer, Esq., The Briars, Whetstone, N., sent Læliocattleya Ledru Rollin (Carmen × Fabia), a well-shaped flower, with lilac-coloured sepals and petals, and a dark purple lip.

Pantia Ralli, Esq., Ashtead Park, Epsom (gr. Mr. Farnes), sent Brassocattleya Cliftonii The Globe, bearing two flowers, with very broad light-coloured sepals and petals and a well-fringed lip.

Messrs. Charlesworth & Co., Haywards Heath, staged a group of choice things, including good forms of Cattleya Adula and Fabia, C. Frederickiæ alba, C. labiata Penelope, white with a purple blotch on the front of the lip, Dendrobium formosum giganteum, D. Dearei, and D. Phalænopsis, a well-flowered Catasetum Randii, much like C. barbatum but with a much-toothed crest to the lip, Odontoglossum apterum with a four-flowered spike, a good form of O. crispum, Odontioda Joan and a dark O. Brewii, Læliocattleya Golden Oriole, Thyone, luminosa, Arachne, Elinor and others, Brassocattleya Veitchii Queen Alexandra, Cypripedium Germaine Opoix, &c. (Silver Banksian Medal).

Messrs. Sander & Sons, St. Albans, staged a fine group, including some good examples of Cattleya Hardyana, Mantinii, labiata, Fabia, Peetersii, and others, Læliocattleya Phœnix, Astoriæ, and Ophir, a profusely-flowered Dendrobium eriæflorum, a good example of the rare Peristeria aspersa, with nearly globular flowers, spotted with dull purple on a pale

ground, Cœlogyne assamica and Moorei, the fine Cirrhopetalum Rothschildianum, Warscewiczella Sanderiana, with light green sepals and petals and a large violet-purple blotch on the white lip, Brasso-catlælia Wotan (B.-c. Leemanniæ × L.-c. callistoglossa), Vanda Kimballiana and the pretty variety alba, Lycaste Imschootiana, Cypripedium Chapmanii, and other interesting things (Silver Banksian Medal).

Messrs. Armstrong & Brown, Tunbridge Wells, staged Cattleya Princess-Royal (Hardyana × Fabia), having white sepals and petals mottled with pink, and a well coloured lip, C. Snowdon (C. Suzanne Hye de Crom × labiata alba), a promising albino, and Læliocattleya Sand-hurstiana (L.-c. Norba × C. Dowiana aurea), having nankeen yellow sepals and petals and a deep crimson-purple lip.

Messrs. Cypher & Sons, Cheltenham, staged a small group, including some good forms of Dendrobium Phalænopsis, Brassocattleya Mariæ, Cattleya Bowringiana atrosanguinea, with very richly-coloured flowers, C. Mantinii, some good C. Fabia, Læliocattleya Cappei with four flowers, Cypripedium Rossetti, C. Leeanum, and others.

Messrs. E. H. Davidson & Co., Orchid Dene, Twyford, sent Cattleya labiata Rubens and C. l. Empress, two richly-coloured forms, and a beautiful example of C. O'Brieniana alba with a spike of six fine flowers.

Messrs. J. & A. McBean, Cooksbridge, sent a small group, including good forms of Cattleya labiata, Fabia, and Iris, examples of Odontioda Charlesworthii, Lambeauiana, and Bradshawiæ, the pretty Odontonia brugensis, Cymbidium Doris and Pauwelsii, Brassocattleya Iris, and others.

Messrs. Flory & Black, Orchid Nursery, Slough, sent Zygopetalum Blackii (crinitum × Perrenoudii), a promising hybrid, having chocolate-brown sepals and petals margined with green, and the lip veined and tinged with violet blue on a white ground.

Messrs. Hassall & Co., Southgate, sent a pretty yellow form of Cattleya Sylvia, and C. Minucia with a spike of five well-developed flowers.

FIRST-CLASS CERTIFICATE.

LÆLIA PUMILA ALBA ORCHID DENE VAR.—A very charming albino, bearing two large and beautifully shaped white flowers, with a little light yellow in the throat of the lip. Exhibited by Messrs. E. H. Davidson & Co.

AWARDS OF MERIT.

CATTLEYA AJAX ORCHIDHURST VAR. (C. Dowiana aurea × Armstrongiæ).—A very pretty variety, bearing a spike of three flowers, having rose-pink sepals and petals, and a rich ruby red lip, well expanded in front. Exhibited by Messrs. Armstrong & Brown.

LÆLIOCATTLEYA LADY OLIPHANT (L.-c. Norba × C. Souvenir de Queen Victoria).—A beautiful hybrid, having greenish yellow sepals and petals,

and a claret-coloured lip with some yellow veining at the base. Exhibited by Pantia Ralli, Esq.

ODONTONIA MAGALI-SANDER VAR. XANTHOTES.—A very charming variety, exhibited by Messrs. Charlesworth & Co., whose history and a figure are given at page 337.

MANCHESTER AND NORTH OF ENGLAND ORCHID.

At the meeting held at the Coal Exchange, Manchester, on September 24th, the members of Committee present were: Rev. J. Crombleholme (in the Chair), Messrs. R. Ashworth, J. Bamber, J. J. Bolton, J. C. Cowan, J. Cypher, J. Evans, J. Howes, A. J. Keeling, J. Lupton, D. McLeod, W. J. Morgan, C. Parker, W. Shackleton, J. Smith, H. Thorp, Z. A. Ward, G. Weatherby, and H. Arthur (Secretary).

R. Ashworth, Esq., Newchurch (gr. Mr. Gilden), staged a mixed group, to which a Silver-gilt Medal was awarded. It contained some excellent Cattleyas, Cypripediums, and Miltonias, Odontoglossum Bronze-Dragon, Brunette, and Fletcherianum, Odontiodas Brewii and Diana, Dendrobium Phalænopsis, and others.

Col. J. Rutherford, M.P., Blackburn (gr. Mr. Lupton), was also awarded a Silver-gilt Medal for a group, composed principally of Cattleyas, Lælio-cattleya Dominiana, Brassocattleya Maronii, Cypripedium Chorltonii, Rossetti, and others.

Wm. Thompson, Esq., Walton Grange (gr. Mr. Howes), was awarded a Silver Medal for a fine group of Odontoglossums and Cypripediums.

H. J. Bromilow, Esq., Rainhill (gr. Mr. Morgan), sent the rare Cypripedium Charlesworthii var. Bromilowianum.

Messrs. Cypher & Sons, Cheltenham, staged a mixed group, to which a Silver Medal was awarded. It contained some fine Cypripediums, Oncidium incurvum album and O. varicosum Rogersii, Odontoglossum grande, Dendrobium formosum giganteum and Læliocattleya Nysa.

Messrs. Sander & Sons, St. Albans, were also awarded a Silver Medal for a group of Cattleyas and Cypripediums, with Anguloa Cliftonii, Odonto-glossum grande, Dendrobium Sanderæ, and others.

Messrs. A. J. Keeling & Sons, Bradford, were awarded a Bronze Medal for a group of Cypripediums with Cattleya Mantinii, Læliocattleya Walter Gott, and others.

Messrs. Hassall & Co., Southgate, London, staged hybrid Cattleyas.

FIRST-CLASS CERTIFICATES.

Cattleya Empress-Frederick alba (C. Mossiæ Wageneri × Dowiana aurea), a well-set flower, with sepals and petals pure white, the throat of the lip lightly veined, and the base well coloured. From S. Gratrix, Esq., Whalley Range (gr. Mr. Brown).

AWARDS OF MERIT.

Cattleya Adula Vale Bridge var., from Mrs. R. le Doux, West Derby (gr. Mr. Fletcher).

Cattleya Iris Ashlands var., from R. Ashworth, Esq.

Cypripedium Actæus gigas, from H. J. Bromilow, Esq.

Cattleya General Smith-Dorrien (C. Maronii × Mantinii), from Col. J. Rutherford.

Cattleya Sybil var. Sir John French (C. Dowiana aurea × C. iridescens), from S. Gratrix, Esq.

Anguloa Cliftonii Rawdon var., from Messrs. Mansell & Hatcher.

FIRST-CLASS BOTANICAL CERTIFICATE.

Cœlia macrostachya, from Messrs. A. J. Keeling & Sons.

CULTURAL CERTIFICATE AND BRONZE MEDAL.

Odontioda Flamingo, bearing a magnificent spike, to Mr. J. Howes, gr. to Wm. Thompson, Esq.

AWARD OF APPRECIATION.

Odontoglossum Uro-excellens (Uroskinneri × excellens), from R. Ashworth, Esq.

At the meeting held on October 15th, the members of Committee present were: Rev. J. Crombleholme (in the Chair), Messrs. R. Ashworth, J. Bamber, H. Bell, J. J. Bolton, J. C. Cowan, J. Cypher, J. Evans, J. Howes, A. J. Keeling, J. Lupton, D. McLeod, C. Parker, W. Shackleton, Z. A. Ward, G. Weatherby, and H. Arthur (Secretary).

R. Ashworth, Esq., Newchurch (gr. Mr. Gilden), was awarded a Silver-gilt Medal for a mixed group, including Cattleya labiata, Iris var. Ashworthiæ, Pittiæ, Mrs. W. J. Whiteley, Fabia, Petersii, and fulvescens, Læliocattleya Haroldiana, Sophrocattleya Marathon var. Dulce, Cypripedium insigne Sanderæ, Lord Ossulston, Corneyanum, Germaine Opoix, Gaston Bultel, Elatior, and Actæus, Odontiodas in variety, Odontoglossum Cervantesii decorum Ashlands var., amabile Milky Way, Aireworth, illustrissimum Janua and Ashlands var., Dendrobiums Phalænopsis hololeucum and Statterianum, Vanda cœrulea, Cirrhopetalum ornatissimum, and others.

Z. A. Ward, Esq., Northenden (gr. Mr. Weatherby), was awarded a Large Silver Medal for a group, including Cypripedium Zethus, Corneyanum, Hitchinsiæ, triumphans, beechense, Lord Ossulston, Actæus Mrs. Ward, Rogersonii, and Chardwar var., Jasper, Thalia Mrs. F. Wellesley, insigne Harefield Hall var., Dorothy, Sanderæ, Laura Kimball, Perfection, and Princess of Wales, Cattleya Hardyana, Miss Williams, and Armstrongiæ var. Mrs. Ward, Dendrobium formosum giganteum, and others.

W. R. Lee, Esq., Heywood (gr. Mr. Branch), was awarded a Large

Silver Medal for a choice group, including Cypripedium Bianca, King George, Queen Alexandra, Luna, Pallas Athene, Hannibal, Goliath, Dreadnought, Eve, Rossetti, Leeanum and var. Balliæ, Thalia Mrs. F. Wellesley, and others.

Col. J. Rutherford, M.P., Blackburn (gr. Mr. Lupton), staged a group, to which a Large Silver-gilt Medal was also awarded. It included Cattleya labiata Mrs. R. le Doux, C. Fabia and C. Maroniæ, Læliocattleya Admiral Dewey and Myra; Brassocattleya Veitchii Queen Alexandra, Cymbidium erythrostylum, a batch of Epidendrum vitellinum, and others.

Wm. Thompson, Esq., Walton Grange (gr. Mr. Howes), was awarded a Silver Medal for a group, including Cypripedium Harold, Sidneyanum inversum, Fairri-Goweri, Ætna, San Actæus, Chas. Richman, Earl Egerton, Arthurianum Walton Grange var., Sir Redvers Buller, Actæus Bianca, and Priam, Cattleya Iris majestica, Lælia pumila, Odontoglossum amethystinum, O. Cervantesii decorum, and others.

J. J. Bolton, Esq., Edenfield, Manchester (gr. Mr. Law), staged a number of plants of Odontoglossum grande, Cattleya Dowiana aurea, Læliocattleya callistoglossa, Epidendrum vitellinum, and others, a Special Vote of Thanks being accorded.

A. J. Oakshott, Esq., Bidston (gr. Mr. Findlow), sent Cypripedium rawdonense.

J. Stott, Esq., Radcliffe, sent Cattleya Thurgoodiana.

Messrs. Cypher & Sons, Cheltenham, were awarded a Silver Medal for a mixed group, including several very fine Cattleya labiata, Mantinii, suavior, Portia superba, Bowringiana var. atrosanguinea, good forms of Dendrobium Phalænopsis, Cypripedium Rossetti and Sir Redvers Buller, Odontoglossum madrense, Oncidium ornithorrhynchum and var. album, Pleione lagenaria, and others.

Messrs. A. J. Keeling & Sons, Bradford, staged several plants of a very fine form of Cypripedium Rossetti, Cattleya Iris superba, Odontoglossum crispum xanthotes, and others.

Messrs. Sander & Sons, St. Albans, staged Cattleya Fabia var. Illuminator and C. Mantinii Sander's var.

Mr. J. Evans, Congleton, staged Cattleya Adula, Mrs. Pitt and Mantinii.

Mr. J. Birchenall, Alderley Edge, staged Cattleya Hardyana, Miltonia Lamarcheana and Chondorhyncha Chestertonii.

FIRST-CLASS CERTIFICATE.

Odontonia Cholletii (Miltonia vexillaria × Odontoglossum Harryanum), a flower with segments of suffused pink and the O. Harryanum lip; from W. R. Lee, Esq.

AWARDS OF MERIT.

Cattleya labiata var. Pandora, C. l. Ashlands var., Odontoglossum

Minos (loochristiense × Lambeauianum), and Cypripedium Thisbe (Actæus Drewett's var. × ?); all from R. Ashworth, Esq.

Cattleya Fabia alba var. Lady Jellicoe, C. Iris var. Sir John Jellicoe, aud Læliocattleya St. Gothard West Point var. (L. Gottoiana × C. Hardyana); all from S. Gratrix, Esq., Whalley Range (gr. Mr. Brown).

ONCIDIUM LEOPOLDIANUM.

FURTHER information is at last to hand respecting this striking Peruvian Oncidium. A plant has flowered in the collection of H. S. Goodson, Esq., Fairlawn, Putney (gr. Mr. G. E. Day), and was exhibited

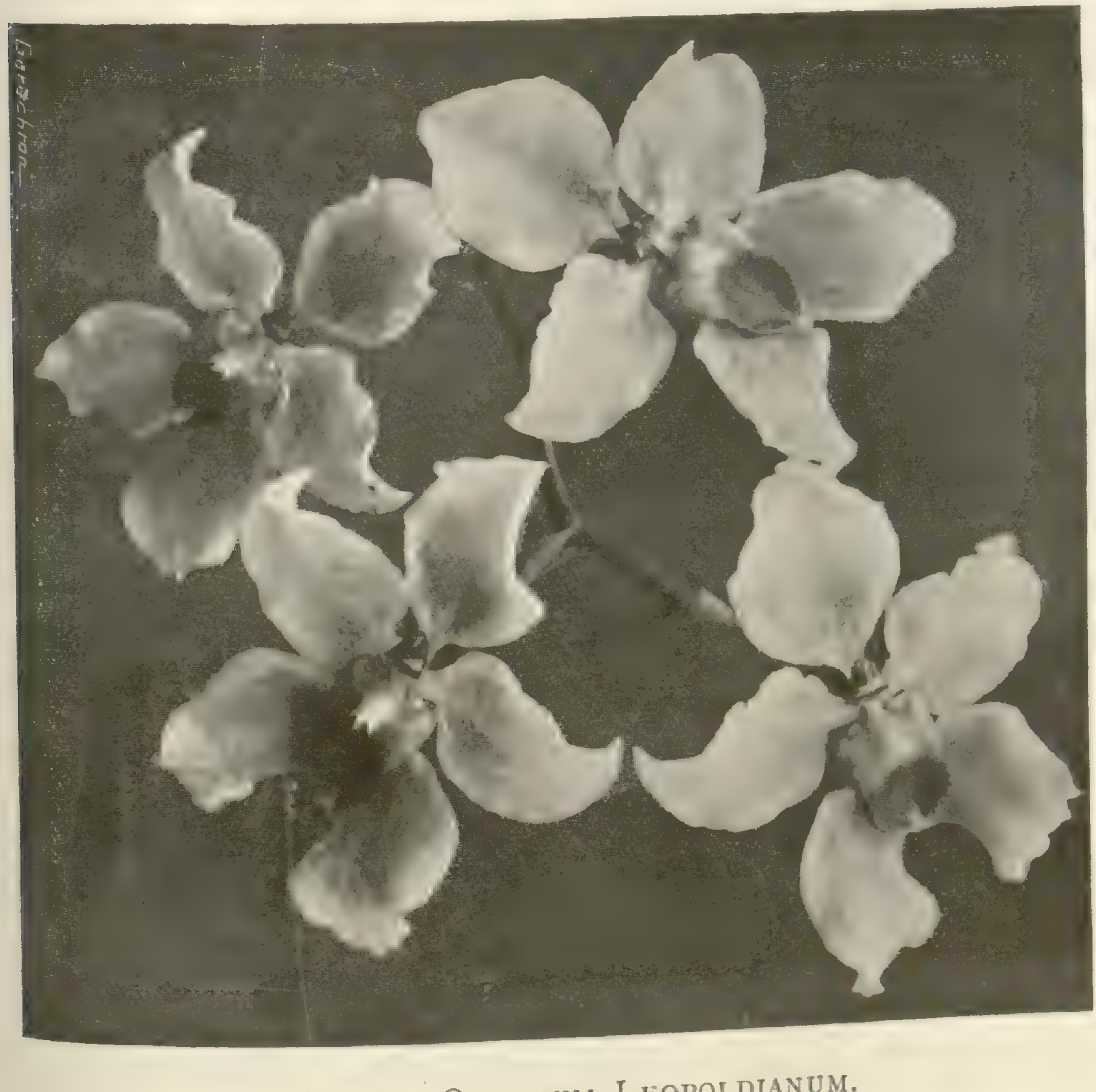

Fig. 44. ONCIDIUM LEOPOLDIANUM.

at the R.H.S meeting held on July 28th last, when it received an Award of Merit (see page 248 of our August issue). This plant was obtained from Mr. H. A. Tracy, Twickenham, and is one of a small batch collected at Calaveras, in the Moyambamba district, Peru, by Mr. Kromer. From Calaveras the plants were taken to Equitos, repacked, and sent off in May,

1908, but only a small number survived the journey. At the same time Mr. Tracy received plants of Cattleya Rex, Anguloa uniflora, and Oncidium Kramerianum from this district.

The species has an interesting history. It was originally collected by Bungeroth, for Messrs. Linden, Brussels, and was described some 24 years ago from dried specimens and a sketch in water colours made by the collector (Rolfe in *Gard. Chron.*, 1890, ii. p. 556). Living plants had been introduced, but had not yet flowered in Europe. The species was dedicated to His Majesty Leopold II., King of the Belgians. It was described as a species of the Cryptochilum group, and allied to O. corynephorum, Lindl., a species then only known from dried specimens, which was readily distinguished by its broadly rounded lip. A coloured plate was shortly afterwards given (*Lindenia*, vi. t. 274), this being made up from the living plant, the dried flowers, and the collector's drawing.

For some fifteen years nothing further was known about the species beyond the existence in cultivation of three or four plants which steadily refused to flower, but in October, 1905, E. Ashworth, Esq., Harefield Hall, Wilmslow, wrote that his plant was in bloom, and would be exhibited at the next meeting of the R.H.S. The plant duly appeared, and received a First-class Certificate, but on reaching the hall in the afternoon great was our surprise to see, not O. Leopoldianum, but the old O. corynephorum, described by Lindley some sixty-seven years earlier (*Sert. Orch.*, sub. t. 25, n. 1.) from dried specimens collected by Matthews at Moyambamba, Peru. We then gave the history of the two species (*O.R.*, xiii. pp. 334-336), and also a photograph of the plant (*l.c.*, p. 359, Frontispiece). Mr. Ashworth's plant was from the original importation, as it was purchased at the G. D. Owen sale eight years previously as O. Leopoldianum, and had been originally obtained from Messrs. Linden some seven years earlier.

The appearance of O. corynephorum in cultivation was interesting, and as the habitat of O. Leopoldianum had not been recorded we suggested that the two species might grow together, and resemble each other so much when out of bloom as not to be distinguished. And we added: "It will be interesting to see what the other plants are when they flower. There are still two with Messrs. Linden, at Brussels, and one in the collection of Sir Frederick Wigan, at Clare Lawn, but none of them have flowered, which itself is remarkable, considering how long ago they were imported." An interesting confirmation of the suggestion comes in the recorded habitat of Mr. Goodson's plant.

O. Leopoldianum bears a general resemblance to O. corynephorum but is markedly different in the shape of the lip, which is broadly ovate in shape, with a somewhat hastate base, and the colour violet-purple, with a nearly white margin and a bright yellow crest. The sepals and petals are

white, more or less freckled and suffused with rose-purple towards the base. Mr. Goodson's plant had a long twining inflorescence and about forty-five flowers, borne in short side branches of two to six flowers each. For the loan of the block were are indebted to the courtesy of the Editor of the *Gardeners' Chronicle*.

R.A.R.

DENDROBIUM PINIFOLIUM.—An interesting Bornean Dendrobium is flowering at Kew, which was presented by the Hon. N. C. Rothschild, Ashton Wold, Oundle, and proves to be D. pinifolium, a species described in 1896 from materials collected at Sandakan by Pryer (Ridl. in *Journ. Linn. Soc.*, xxxi. p. 269). It is nearly allied to the Burmese D. pachyglossum, Par. & Rchb. f., which it much resembles in habit, but the flowers are larger, and the sepals and petals closely lined with red-brown on a light yellow ground. The lip is honey yellow, with a brownish suffusion in front, the side lobes being acute, and the front lobe terminating in two rounded auricles. The lateral sepals and narrow petals are much reflexed. The stems are somewhat channelled, as in the D. revolutum set, and are about six inches long, and the leaves are narrow, acute, and very rigid, their sheaths being covered with copious black hairs when young. We had not seen the species before.—R.A.R.

ORCHIDS IN THE WAR AREA.—M. Henri Graire, St. Fuscien, Amiens, France, is well known to our readers as a very successful Orchid hybridist, and the raiser of Odontioda Graireana, O. Devosiana (named after his gardener, M. De Vos), O. Euterpe, O. ignea, O. Margarita, the handsome O. St. Fuscien, Adioda St. Fuscien, and several interesting Odontoglossums, which he has exhibited at meetings of the R.H.S. On October 3rd the *Gardeners' Chronicle* published part of a letter received from him on September 24th, 1914, from which the following is extracted:—

"Up to the present my greenhouses are intact. The Germans passed through St. Fuscien, and neither entered my greenhouses nor my living house; they were satisfied to take all the fruit and vegetables out of the garden—no great matter. Shall I be as lucky till the end? I trust to see no more of them; nevertheless, we hear ceaselessly the boom of the cannon in the neighbourhood. Amiens was occupied for eight days; it was very sad; but the Allies returned, and now we have 100,000 men near us."

The note appeared under the heading, "Germans visit a French Nursery," a mistake which was subsequently corrected, for M. Graire is an amateur grower, though, like many others, he disposes of some of his surplus stock. There are other establishments in the war area about which anxiety is felt, but we hope they will escape destruction.

LÆLIA PUMILA ALBA.

A BEAUTIFUL albino of Lælia pumila was exhibited at the R.H.S. meeting held on 20th October last, by Messrs. E. H. Davidson & Co., Orchid Dene, Twyford, under the name of Lælia pumila alba Orchid Dene variety, and received a First-class Certificate. It has pure white flowers, with a little light yellow on the disc of the lip. The earliest mention we find of a true albino of the species is in 1896, when we remarked (*O.R.*, iv. p. 289): "We learn that an albino of Lælia præstans has appeared in the collection of D. B. Rappart, Esq., Liscard, Cheshire, as an imported plant. Sepals, petals, and lip are all pure white, with only the addition of a trace of yellow in the throat. L. præstans alba approaches the nearest in this condition to any form we have yet seen, but this has some purple on the lip." L. præstans, it may be explained, is now considered as synonymous with L. pumila, and shortly afterwards this albino was described as L. pumila alba var. E. Ashworth (O'Brien in *Gard. Chron.*, 1896, ii. p. 424). It is said to have flowered with D. B. Rappart, Esq., at whose request the distinguishing name was given, as the greater part of the plant had passed into the collection of E. Ashworth, Esq., Harefield Hall, Wilmslow. Mr. Ashworth's plant was exhibited at a meeting of the R.H.S. in December, 1896, when it received a First-class Certificate, and was shortly afterwards figured (*Gard. Chron.*, 1897, i. pp. 1, 11, fig. 3). Messrs. Davidson's plant has the same essential character. It is a chaste and beautiful variety, and still remains rare.

ORCHIDS FROM STAMFORD HILL.—Three interesting hybrids are sent from the collection of H. T. Pitt, Esq., Rosslyn, Stamford Hill, by Mr. Thurgood. Cattleya Queen-Elizabeth (C. Iris × newingtonensis) is a very promising thing, most resembling the latter, which was derived from C. Whiteleyæ × C. Harrisoniana, while C. Whiteleyæ came from C. Bowringiana × C. Hardyana. The flower sent is of good shape and substance, the colour being rose-purple with some light yellow in the throat of the lip. The influence of C. bicolor and C. Dowiana aurea are not obvious, but may appear in other seedlings of the batch. C. Freya (C. Mantinii × C. Dowiana aurea) is most like the seed bearer in general character, having a deep rose-purple flower, but, singularly enough, there is less yellow in the throat, so that the flower is more like an improved form of C. Bowringiana. Læliocattleya Queen-Helena (C. Mantinii × L.-c. luminosa) is larger than the seed bearer, and has a well-shaped rose-purple flower, with a decided flush of orange, and some yellow veining in the throat of the lip. It should develop into a good thing.

DICHÆAS FROM COSTA RICA.

THE species of Dichæa are very seldom seen in cultivation, but two have now flowered at Kew in a small collection of living Orchids sent from Costa Rica by Mr. C. H. Lankester, and form the subject of a paper in the last number of the *Kew Bulletin* (pp. 361-362). Both were described by Reichenbach, and one of them has been much confused in books.

D. HISTRIO was originally based on a drawing by Lindley of a plant which flowered in the garden of the Horticultural Society at Chiswick in October, 1856, and which is said to have been sent from Mexico by Botteri. This Lindley confused with his D. echinocarpa, originally based on the Jamaican Epidendrum echinocarpum, Swartz, which is quite distinct. When Reichenbach described D. histrio he remarked that it was identical with a plant that passed in commerce under the name of Pachyphyllum procumbens, which was a true Dichæa, and this note enables another doubtful plant to be cleared up, for, though elsewhere recorded, it has not been described, and has stood as a doubtful Pachyphyllum down to the present. The Mexican specimens hitherto referred to D. echinocarpa really belong to D. histrio, which is most allied to D. muricata, Lindl., but is larger in all its parts, and has not such closely arranged leaves.

D. BRACHYPODA was based on a specimen collected at San Miguel, Costa Rica, by Wendland, in May, 1857, the collector describing the flowers as light green with reddish spots. It was compared with D. graminioides, Lindl., and Mr. Lankester's plant agrees so well with the description as to leave little doubt as to its identity. There are other Central American Dichæas that are only known from description, and further materials would be acceptable.

R.A.R.

ORCHIDS AT KEW.—Several very interesting Orchids are again flowering at Kew, and first and foremost we must mention that the large plant of Grammatophyllum speciosum in the Victoria House is again producing a fine spike. On this occasion there are no fewer than seven of the peculiar lipless flowers, three being close to the base of the spike, and the other four occurring, after a rather long interval, below the normal flowers. A plant o the rare and handsome Arachnanthe Clarkei is producing a spike of four of its striking flowers. The very distinct Bulbophyllum Gentilii is bearing two spikes, which show well their glaucous sepals and the curious habit of exuding pearl-like drops of nectar from the back. We may also mention a fine plant of Ione paleacea with nineteen racemes, the rare Gongora aurantiaca, and a beautiful group of Pleiones.

OBITUARY.

FRANK CYPHER.—We regret to record the death, on September 26th last, of Mr. Frank Cypher, youngest son of James Cypher, and partner with Mr. John Cypher, of the Exotic Nurseries, Cheltenham. Mr. Cypher had enjoyed good health until three weeks before his death, when he had an attack of cerebral hæmorrhage from which he never recovered. He was only 48 years old.

JOHN GOULD VEITCH.—We much regret to announce the death, on October 3rd last, at the early age of 45, of Mr. John Gould Veitch, M.A., partner and for some years secretary of the firm of James Veitch & Sons, Royal Exotic Nursery, Chelsea. The deceased, who had been in failing health for some years, was the only surviving brother of James Herbert Veitch, who died in 1907, and the son of John Gould Veitch, and nephew of Sir Harry J. Veitch. He was formerly a famous footballer, and played for his University, and afterwards was a member of the Corinthian Club. He leaves a widow and one son, who have our sincere sympathy in their bereavement.

ORCHID NOTES AND NEWS.

TWO meetings of the Royal Horticultural Society are announced to be held at the Royal Horticultural Hall, Vincent Square, Westminster, during November, on the 3rd and 17th, when the Orchid Committee will meet at the usual hour, 12 o'clock noon.

Meetings of the Manchester and North of England Orchid Society will be held at The Coal Exchange, Manchester, on November 5th and 19th. The Committee meets at noon, and the exhibits are open to members and the public from 1 to 4 p.m.

R.H.S. MEETINGS.—At page 319 we published the Society's notice that owing to the requirements of the military authorities the fortnightly shows would have to be abandoned for the present, but that the Committees would meet on the specified dates. Shortly afterwards a more satisfactory notice was issued by the Secretary:

"I am pleased to be able to tell you that unless some exceptional crisis occurs, the shows of the Society will from henceforth be continued uninterruptedly in the R.H.S. Hall, and the year's programme will be completed as appearing in the Book of Arrangements for 1914. To-day a representative from the Supply and Transport Office, Horse Guards (the

authority concerned in the billeting of troops), called upon me, and has undertaken that in future troops shall not be quartered on us if any other arrangement is possible; but that in the event of any grave crisis or emergency arising, such as to cause the calling up of many thousands of men in London, then all halls, etc., must be utilised, and ours, of course, amongst them. He seemed quite to think that we had been hardly dealt with in the past, and promised that it should not occur again, except in the case of absolutely unavoidable necessity. W. WILKS (Secretary)."

"White varieties of Cattleya Mossiæ in Mr. Leemann's collection at West Bank, Heaton Mersey," is the subject of a fine supplementary illustration in the *Gardeners' Chronicle* for October 3rd last, and at p. 236 it is remarked that Mr. Leemann has been engaged in collecting and propagating white forms of the species for years past. There are several forms of C. M. Wageneri and C. M. Reineckeana, with a number of others, forming a very fine group. They only represent a quarter of the plants in the collection.

MR. W. H. WHITE, who was for over twenty-five years Orchid-grower to the late Sir Trevor Lawrence, Bart., and who previously had charge of the collection of C. Dorman, Esq., at Sydenham, is seeking a new appointment. The Burford collection was long famous for the high standard of culture always maintained there, as well as for the large number of rarities it contained, and we hope that Mr. White will soon find another field for his well-known abilities as an Orchid grower and hybridist.

We have to thank an old and esteemed American correspondent for a donation to the National Relief Fund, mentioned on page 257 of our September issue. It is sent "with profound sympathy for England and her Allies," and has been forwarded to H.R.H. the Prince of Wales.

ODONTOGLOSSUM URO-EXCELLENS.—A flower of a very interesting and pretty hybrid Odontoglossum is sent from the collection of Richard Ashworth, Esq., Ashlands, Newchurch, Manchester, by Mr. Gilden. It is said to have been raised from O. Uroskinneri × excellens, and received an Award of Appreciation from the Manchester and North of England Orchid Society on September 24th last. It most resembles the O. excellens parent in shape and colour, though somewhat modified by the influence of the other parent. The sepals and petals are light yellow in colour, with several large red-brown blotches, and the lip is cream white, with a similar blotch in front of the crest and a few smaller spots near the margin. We have not seen the plant, which may show more of the O. Uroskinneri influence.

ORCHID PORTRAITS.

ANGRÆCUM SESQUIPEDALE.—*Garden*, 1914, p. 527, fig.

ANGULOA RUCKERI.—*Orch. World*, v. p. 12, fig.

CATTLEYA AJAX ORCHIDHURST VAR.—*Gard. Mag.*, 1914, p. 761, fig.

CATTLEYA MOSSIÆ (white vars. of).—*Gard. Chron.*, 1914, ii. p. 236, Suppl. fig.

CYMBIDIUM EBURNEO-LOWIANUM.—*Orch. World*, v. p. 4, fig.

CYMBIDIUM TRACYANUM.—*Orch. World*, v. p. 22, fig.

CYPRIPEDIUM CONSTANCE VAR. JAMES H. VEITCH.—*Orch. World*, v. p. 17, fig.

CYPRIPEDIUM IO.—*Orch. World*, v. p. 17, fig.

CYPRIPEDIUM STONEI PLATYTÆNIUM.—*Orch. World*, v. p. 18, fig.

GALEANDRA DEVONIANA.—*Orch. World*, v. p. 5, fig.

DENDROBIUM THYRSIFLORUM.—*Journ. Hort.*, 1914, ii. p. 271, fig.

HABENARIA SUSANNÆ.—*Orch. World*, v. p. 11, fig.

HOULLETIA WALLISII.—*Journ. Hort.*, 1914, ii. p. 245, fig.

LÆLIA PURPURATA ALBA.—*Gard. Mag.*, 1914, p. 723, fig.

LÆLIA PUMILA ALBA ORCHID DENE VAR.—*Gard. Chron.*, 1914, ii. p. 283, fig. 111.

LÆLIOCATTLEYA MRS. EVELYN NORRIE.—*Gard. Mag.*, 1914, p. 735, fig.

LÆLIOCATTLEYA PALLAS.—*Orch. World*, v. p. 14, fig.

MASDEVALLIA VEITCHIANA.—*Orch. World*, v. p. 21, fig.

VANDA CŒRULEA WESTONBIRT VAR.—*Journ. Hort.*, 1914, ii. p. 258, fig.

VANDA HOOKERIANA.—*Orch. World*, v. p. 9, fig.

ANSWERS TO CORRESPONDENTS.

[*Orchids are named and questions answered here as far as possible. Correspondents are requested to give the native country or parentage of plants sent. An* ADDRESSED *postcard must be sent if a reply by post is desired (abroad, reply postcards should be used). Subjects of special interest will be dealt with in the body of the work*]

F. J. Le M.—1, Oncidium Leiboldii, Rchb. f.; 2, Isochilus linearis, R. Br.; 3, Epidendrum umbellatum, Swartz; 4, Epidendrum globosum, Rchb. f.; 5, Pleurothallis, to be reported later. The plant is being taken care of. The other matters are being duly attended to.

X.—We do not think that secondary hybrids should be treated as varieties of the primary hybrids from which they are derived. In some cases we know that the resemblance is great, but other seedlings out of the same batch are often very different. We should bring seedlings of the same parentage under one specific name, adding distinguishing varietal names as necessary.

Received with thanks:—A.C., H.T.P., F.T., F.J.Le M., S. & Sons.

Photographs received with thanks:—C. & Co., F.J.Le M.

VOL. XXII. DECEMBER, 1914. No. 264.

THE ORCHID REVIEW

Edited by R. ALLEN ROLFE, A.L.S.

CONTENTS:

	PAGE
Amateur's Collection	373
American Exhibitions	370
Answers to Correspondents	376
Calanthe Branchii	375
Calendar of Operations for December	357
Colman, Sir Jeremiah, Bart., V.M.H.	356
Dendrobium Tofftii	360
Grammatophyllum speciosum ...	372
Læliocattleya Chamberlainiana ...	371
Miltonioda Ajax	355
Odontoglossum grande Pittianum ...	362
Oncidium Leiboldii	361
Orchid hybridisation ; Some results of	353
Orchid Notes and News	374
Orchids in season	372
Orchid Portraits	376
R.H.S. Scientific Committee ...	374
Societies	363
Manchester and North of England Orchid	367
New York Horticultural	369
Pennsylvania Horticultural ...	370
Royal Horticultural	363

ILLUSTRATIONS.

Colman, Sir Jeremiah, Bart., V.M.H.	Frontispiece
Oncidium Leiboldii	361

**** *FRONTISPIECE, TITLE PAGE, AND INDEX.*

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THE ORCHID REVIEW.

SIR JEREMIAH COLMAN, BART., V.M.H.

(*See page* 356).

The Orchid Review

VOL. XXII. DECEMBER, 1914. NO. 264.

SOME RESULTS OF ORCHID HYBRIDISATION.

A MEETING and house dinner of the Horticultural Club was held at the Hotel Windsor, Victoria Street, Westminster, on November 17th, under the Presidency of Sir Harry J. Veitch, when the subject of the lecture was "Some Results of Orchid Hybridisation," by Mr. H. J. Chapman, Oakwood Gardens, Wylam, who illustrated his remarks by a large number of autochrome and hand-coloured lantern slides. The lecturer referred to the remarkable results obtained by Orchid hybridists especially in the intercrossing of allied genera, which had resulted in a great progressive development that was particularly evident in the great variety of Orchids now obtainable in flower during the winter months.

Commencing with the genus Phaius, the lecturer showed flowers of the species which have been so successfully crossed at Oakwood, with the resulting hybrids, including a few well-grown specimens in which the colouring was remarkably well shown. He then passed on to Odontoglossums and showed a remarkable series of blotched hybrids, including a number of the most diverse seedlings obtained from the same capsule; in the case of the secondary hybrid O. percultum the same pod had produced every intermediate form from white to solid purple. A large series of slides was shown, of both the original species and the primary and secondary hybrids, including a number of plants in flower, in which some realistic effects were obtained, especially in groups intermixed with the scarlet Odontiodas, which have now attained such a marvellous development under the hands of the hybridist.

Passing to the Cypripedium group, Mr. Chapman showed some of the popular species and hybrids of both the Old World and the American Cypripedes, and also a transverse section of the ovary in each to show the essential distinctness in structure. Showing a good slide of C. insigne Sanderæ, the lecturer remarked that it had several times been raised true from seed when self-fertilised, but when crossed with so-called albinos of other species it invariably reverted to ordinary coloured forms. This

tendency to reversion, however, had been overcome by recrossing with the albino parent. One slide showed the result of crossing C. Leeanum with C. insigne Sanderæ, yielding C. Actæus, which recrossed with the same pollen parent gave C. San-Actæus, and in the next generation C. San-ac-deræ, which possessed the same albino characteristics as the original C. insigne Sanderæ. Other albinos were capable of reproducing their characteristics when self-fertilised, and there were several cases where two whites crossed had produced true albinos, as in the case of Cattleya intermedia alba × C. Mossiæ Wageneri, producing the well-known C. Dusseldorfii Undine.

The genus Calanthe showed some of the highest results hybridisation had yet achieved, and Mr. Chapman expressed the opinion that if similar progress were obtained in other families of plants in the future there will be such a distribution of colour as can hardly be imagined. At the outset C. vestita, a white flower having a purple disc, was crossed with C. rosea, having small rose-coloured flowers, yielding the well-known C. Veitchii, and all of which were shown, together with slides of the succeeding generation. Further crossing had yielded such diverse varieties as the rich carmine-rose C. Angela and C. Chapmanii. The colour had been turned completely inside out, the white occurring in the central disc and the deep red on the sepals and petals and outer lobes of the lip. This development was illustrated by a series of slides.

Turning to the bigeneric hybrids, the lecturer said that they were now so numerous as to form a subject that could only be treated thoroughly if an evening were reserved for them, but he showed slides which illustrated some of the more important crosses, particularly among the Odontiodas, of which some remarkable and beautiful flowers were exhibited. A long series of hybrids of the most diverse genera, with their parents, were shown and were greatly admired.

In opening the discussion which followed the exhibition of the slides Mr. R. A. Rolfe reviewed some of the subjects upon which the lecturer had touched. With regard to the great preponderance of blotched forms found among hybrid Odontoglossums, he thought it was a case of reversion. Taking the genus as a whole, the yellow and blotched forms were far more numerous than the white, which latter might be regarded as the latest stage of development, and reversion was a common feature among hybrids. The sections of the ovary of the Old and New World Cypripedes thrown upon the screen were interesting, and showed a fundamental difference between the two groups. And there was another difference, which Dr. Lindley always anticipated would be found, but failed himself to detect, namely, that in the former the sepals were imbricate but in the latter valvate. The difference was well seen by cutting a bud across. For a long time the two

could not be crossed, but he believed one true hybrid between them had flowered. The hardy Cypripediums formed a third group, and there was a fourth, consisting of tall, Sobralia-like plants practically unknown in cultivation, though he had once seen one of them. In his opinion they constituted four perfectly distinct genera. The colour slides shown were excellent, and of the highest value as records. He greatly preferred photographic reproductions to hand-painted paintings, and looked forward to the time when photographs would be reproduced in colour with the same accuracy as was already obtained in form.

Mr. F. K. Sander emphasised the enormous commercial value that now pertained to Orchid hybrids. In any collection of exhibited Orchids the proportion of hybrids to species was altogether more favourable to hybrids than formerly. Not only had Orchid hybridisation given to Orchid culture a great stimulus over all the world, but Orchid growers might claim that the results had stimulated the efforts of hybridists in every other class of plants.

Mr. W. Watson made some remarks upon the history of Orchid hybridisation, and referred to the fact that it was due to an amateur, Dr. Harris, a medical man, that John Dominy was first led to attempt the cross-fertilisation of Orchids—that attempt being rewarded, as everyone now knows, in the raising of Calanthe Dominyi, which was first recorded in the *Gardeners' Chronicle* in 1858. Mr. Watson added that the hand-coloured slides exhibited that evening were the best he had seen.

Mr. A. Worsley pointed out that the albinos mentioned by the lecturer were not strictly albinos. They were only albinos in the sense that certain colours in other flowers were undeveloped in them. But they were not pure white to the exclusion of green, brown, and other colours. Consequently it was not surprising that occasionally the colour development was considerable. At the same time certain crosses undoubtedly possessed the quality of fixity.

Sir Harry Veitch, in proposing a vote of thanks to the lecturer, referred to several episodes in the early history of Orchid hybridisation, and said that he was perfectly sure that the members of the club would be exceedingly grateful to Mr. Chapman if he would fulfil his promise on some forthcoming occasion and speak to them on the subject of bigeneric hybrids.

MILTONIODA AJAX.—Fragrance is an unusual quality among the hybrids of Cochlioda Nœtzliana, and we were agreeably surprised to find that the flowers of Miltonioda Ajax possess a pleasant odour of Carnations, which presumably must have come from the other parent, Miltonia Schrœderiana. The Kew plant is bearing an inflorescence of nineteen flowers, and we observe also an exudation of nectar from the axils of the bracts.—R.A.R.

SIR JEREMIAH COLMAN, BART., V.M.H.

(See *Frontispiece.*)

SIR JEREMIAH COLMAN, BART., V.M.H., to whom we have much pleasure in dedicating the present volume, and whose portrait appears as the Frontispiece, has long been one of our most enthusiastic and successful amateur Orchidists, and his collection at Gatton Park, Reigate, is rich in showy species and botanical rarities, as well as in hybrids—the latter for the most part raised in the collection—its excellence being apparent from the groups exhibited at the principal Shows of the Royal Horticultural Society, as well as at some of the fortnightly meetings. Dendrobiums have long been favourites at Gatton, and the success with which they are grown has been demonstrated by some magnificent groups that have been staged in the Royal Horticultural Hall, Westminster. Sir Jeremiah has been a member of the R.H.S. Orchid Committee since 1899, and ten years later was elected a Vice-Chairman. The collection was for some years under the care of Mr. W. P. Bound, and latterly under that of Mr. J. Collier, and some idea of its richness may be formed from accounts which have appeared in our pages (xiii. pp. 344-346; xv. pp. 250-252; xvi. pp. 294-295), and it may be added that Gatton Park is one of the few places where the remarkable Arachnanthe Cathcartii and the very curious Dendrobium cucumerinum are successfully grown.

AN ABNORMAL ODONTOGLOSSUM.—A curious spike of Odontoglossum eximium var. Stanleyi (armainvillierense × crispum) is sent by Messrs. Swan & Price, Keyfield Nurseries, St. Albans, in which the three lower flowers are abnormal, the petals being apparently missing, while the eight others are normal. The five uppermost flowers have a very broad white margin and a large central red-purple blotch, but in the three next the sepals are more elongated, and the blotches much broken up and irregular, as in the sepals of the abnormal basal flowers. The cause is not apparent, for Mr. Price remarks that they have flowered the same plant for five years, and it has always been normal before, and that it is strong and in good health. And he adds: "If I had sold the plant from the painting, and the purchaser had seen the first flower before the others opened, I think the plant would have been returned to us as incorrect." As regards the arrangement of the markings the difference quite corresponds to that of the two figures of Odontoglossum crispum Queen of the Earth figured in our 16th volume, the five upper flowers being comparable with the figure on page 232, and the others with that on page 233, as they appeared two years later. In this case, however, both kinds of flowers are borne together. It will be interesting to see how the plant behaves another year.

CALENDAR OF OPERATIONS FOR DECEMBER.

By T. W. BRISCOE, Late Foreman of Messrs. Veitch's Hybridising Department.

AT this period of the year growth is slow, and the days are short, which two facts must be borne in mind in the general treatment of our plants. The temperatures and atmospheric moisture must be so adjusted that the plants will remain in a normal state, and those in a resting condition not be excited into activity. Extremes of temperature must be avoided, and every care ought to be taken when giving water. Sharp frosts may be experienced at any time, when it will be necessary to drive the fires rather harder, but it is not advisable to create a hot, stuffy atmosphere. The better plan would be to slightly lower the temperatures, which will reduce the amount of damping down, and thereby bring about those conditions that are most beneficial to Orchids at the end of the year.

VENTILATION.—The ventilation now requires more thought and attention than at any other time. The top ventilators will be rarely opened, but the bottom ones may be used on all favourable occasions; in fact they can be open more or less every day, excepting during fogs, extremely cold weather, and when from any cause the temperatures have fallen below the minimum. Each division should be vaporised with some reliable fumigant about every fortnight, and a close watch must be kept in the seedling house for thrip and other insect pests. During this month the houses can be washed down, where such an operation is necessary, and all plant cleaning concluded by the end of the present year.

COOL HOUSE.—This division is certainly one of the most important in collections of to-day, and in many instances it contains numerous choice and rare specimens. Throughout the winter months the watering and ventilation require extra care, and in regard to the former each plant must become moderately dry before water is given, otherwise excessive moisture will cause the compost to become sour, and then the roots soon decay. If the weather continues mild and open, the house can be freely ventilated, or growth will be weak and spindly, while little need be done in the way of damping down, especially where the gangway is made of ashes and such moisture holding material. No plant should be permitted to develop its full complement of flowers, unless it is strong and well rooted.

CALANTHES.—Some of the vestita section will now be in flower, and they should be staged where the atmosphere is fairly dry and the temperature near 60° Fahr., when the beautiful arching scapes will remain in perfection for a much longer period. Little or no water will be needed, and when the spikes are cut the plants should be placed on a dry light shelf until signs of life are again apparent.

Such plants as Thunias, Chysis, Catasetums, Mormodes, and Cycnoches all require a decided rest, and for the present must be kept on the dry side.

LÆLIA ANCEPS.—The coloured varieties of this showy species are producing a bright display, to be followed in a few weeks by the chaste white forms. All are useful Orchids, but in some collections the latter do not prove so floriferous as the former. This may be partly if not wholly attributed to excessive shade, and lack of fresh air earlier in the season.

SOPHRONITIS GRANDIFLORA.—This brilliant little Orchid is now in flower or bud, and care must be taken that no water is allowed to accumulate in the new growth, or both flower scape and shoot may decay. Frequent root disturbance must not be practised, but if the soil has become stagnant a top-dressing of fresh material can be supplied, provided that root action is in evidence. Keep the base moderately dry, and if it is decided to use any flowers for hybridising purposes, select examples that are well rooted, and the compost in a sweet condition.

SOPHRONITIS HYBRIDS.—These constitute a charming series, and should be represented in every collection. Some are rather small, and even the largest do not take up much space. It is best to arrange them in a batch at the cool end of the Cattleya house, or suspend them two feet from the roof glass. By adopting this method their requirements can be studied, and success is assured. The repotting is done at any time, but it is essential for roots to appear at the base of the partly-developed pseudobulb before operations are commenced. The usual Cattleya compost can be employed, but it must be cut up rather fine, and a fair amount of drainage should be placed in the bottom of the pans. A large quantity of soil about the roots is not needed, but careful watering is necessary at all times, while freedom from insect pests is of the greatest importance. A somewhat shady position should be chosen.

EPIDENDRUMS.—This is a large and varied genus, which contains several plants of horticultural merit, such as E. radicans, E. xanthinum, E. Wallisii, E. Boundii, E. kewense, E. Armstrongii, and the rare E. Endresii. The tall-growing kinds are well adapted for covering walls and pillars, while the two latter are rather dwarf, and make ideal pot plants. The radicans section should be grown in rather large pots, and to produce a good effect ten or a dozen stems ought to be placed in each. To keep up a healthy stock, it will be necessary to propagate some of the top growths at intervals, so as to have a few potsful growing on, to take the place of any decrepit specimens. During the summer months the syringe should be used freely, and an occasional spraying with insecticide will hold in check thrip, which at times is rather troublesome to the new shoots. E. vitellinum majus is a popular and well known plant, and as they pass the flowering stage, cool treatment, with less water at the base, should be the

rule. There are several bigeneric hybrids from Epidendrum, but with the exception of Epiphronitis Veitchii they are of little value from the decorative point of view.

LÆLIA PUMILA AND ITS VARIETIES.—When these charming little plants have passed the flowering period, and root action is evident, any necessary repotting or top-dressing may be done. They succeed best in shallow pans without side holes, which should be suspended about two feet from the glass of the Intermediate house. The usual mixture can be used, but if the plants are not thriving, a few partly-decayed oak leaves may be added with advantage. A large quantity of soil is not conducive to healthy growth, so each receptacle should be filled one-half of its depth with drainage, the watering must not be overdone at any time, and although they may be producing their season's growth, little water is needed until the new roots begin to penetrate the soil. During the resting period sufficient moisture should be given to keep the pseudobulbs in a rigid condition.

HYBRIDS OF LÆLIA PUMILA.—These include a few fine plants, and so far as cultural treatment is concerned it is much the same as described above. Most of them flower before root action commences, and from the partly-developed growth.

CATTLEYAS.—Among those pushing up their flower spikes will be the gorgeous C. Trianæ, and the pretty C. Percivaliana, which, in spite of its small flowers, still finds many admirers. A few degrees more warmth is recommended directly the buds are seen at the base of the sheath, as a sudden fall in the temperature or cool treatment will cause the buds to decay. C. Lawrenceana has now completed its season's growth, and may be kept on the dry side until the spikes appear, but on no account must the pseudobulbs be allowed to shrivel. These remarks apply to all Cattleyas and their hybrids which have finished growing.

MILTONIA VEXILLARIA AND ITS VARIETIES, with the hybrid M. Bleuana are now producing strong growths, and they should be placed about a foot from the roof glass at the cool end of the Cattleya house, or may be given a warm position in the Intermediate division. Careful watering must be the rule, or the tips of the leaves will soon show signs that something is wrong with the treatment. All Miltonias, when making their growth, are subject to attacks from thrip, so it is essential for the future welfare of the plants to make a periodical examination for these pests. If the young leaves adhere to each other they must be released with the handle of a budding knife, while the basal sheath of the new shoot should be removed if it interferes with the roots entering the soil or impedes the development of the current pseudobulb.

TRICHOPILIAS.—Most of these have finished their growth, and from now onward water should be afforded somewhat sparingly. A cool, dry part of

the Intermediate house should be chosen, and the plants placed fairly near to the glass. When they commence to grow they may be removed to the Cattleya house, and in due time any new compost can be given. Ordinary flower pots will suit the strong growing species, such as the beautiful T. suavis, but the less robust plants are best cultivated in rather shallow pans, which should be suspended from the roof. The ordinary compost may be employed, and when the repotting is done, the growing point may be slightly elevated above the rim of the receptacle. This will have a tendency to prevent the "lead" from damping off, but if the watering is properly carried out such a catastrophe rarely occurs. There are quite a number of interesting subjects in the genus Trichopilia, but from the decorative standpoint T. suavis and T. Backhouseana are usually selected. T. coccinea is also very handsome when well grown.

DENDROBIUM TOFFTII is an interesting Australian species that was described in 1890 by F. M. Bailey (*Syn. Queensl. Fl.*, Suppl. 3, p. 71), from materials collected on a creek of the Johnstone River, N. Queensland, by A. G. Tofft. The author remarked: "This new superb species approaches D. undulatum in habit and form of leaves. The stems, however, are much more compressed, and the flowers are both different in form and colour. The stems are said to be four to five feet high, and the inflorescences about 1¾ feet long, the sepals white, the petals faintly lined with violet, and frequently but not always curled, and the lip stained with violet and marked with forked veins, with three strong violet-coloured plates on the disc, and the column stained with violet. A plant bearing this name passed, with other Australian Orchids, into the collection of Sir Jeremiah Colman, Bart., some time ago, and was exhibited at the R.H.S. meeting held on November 17th last. It immediately recalled the Philippine D. taurinum, Lindl., and the exhibitor gave the inflorescence for preservation, and to enable the name to be verified. There is an authentic specimen from Prof. Bailey at Kew, consisting of a single leaf, a piece of the stem, and a single flower, from which the lip is, unfortunately, missing, but the sepals are narrower than in the plant exhibited and the petals relatively so much shorter, as to suggest that the two cannot be specifically identical. We should like to see better material of the Queensland plant, for we do not see how the one exhibited can be separated from D. taurinum, which is also found in the Moluccas. The plant bore an erect inflorescence of three flowers, with whitish sepals, longer twisted petals tinged with lilac, and a broad lip tinged and veined with purple. It received a Botanical Certificate from the Scientific Committee. There are several other interesting North Australian species that are very imperfectly known at present.—R.A.R.

ONCIDIUM LEIBOLDII.

THE annexed figure represents a very distinct and pretty little Cuban Oncidium which has flowered in the collection of Mr. F. J. Le Moyne, Station L., Baltimore, Maryland, U.S.A. Mr. Le Moyne sends for determination a dried inflorescence and two photographs, "one showing the whole plant reduced, and the other the inflorescence life size," and he adds, "I think it is very pretty, and it is very fragrant." The two photos

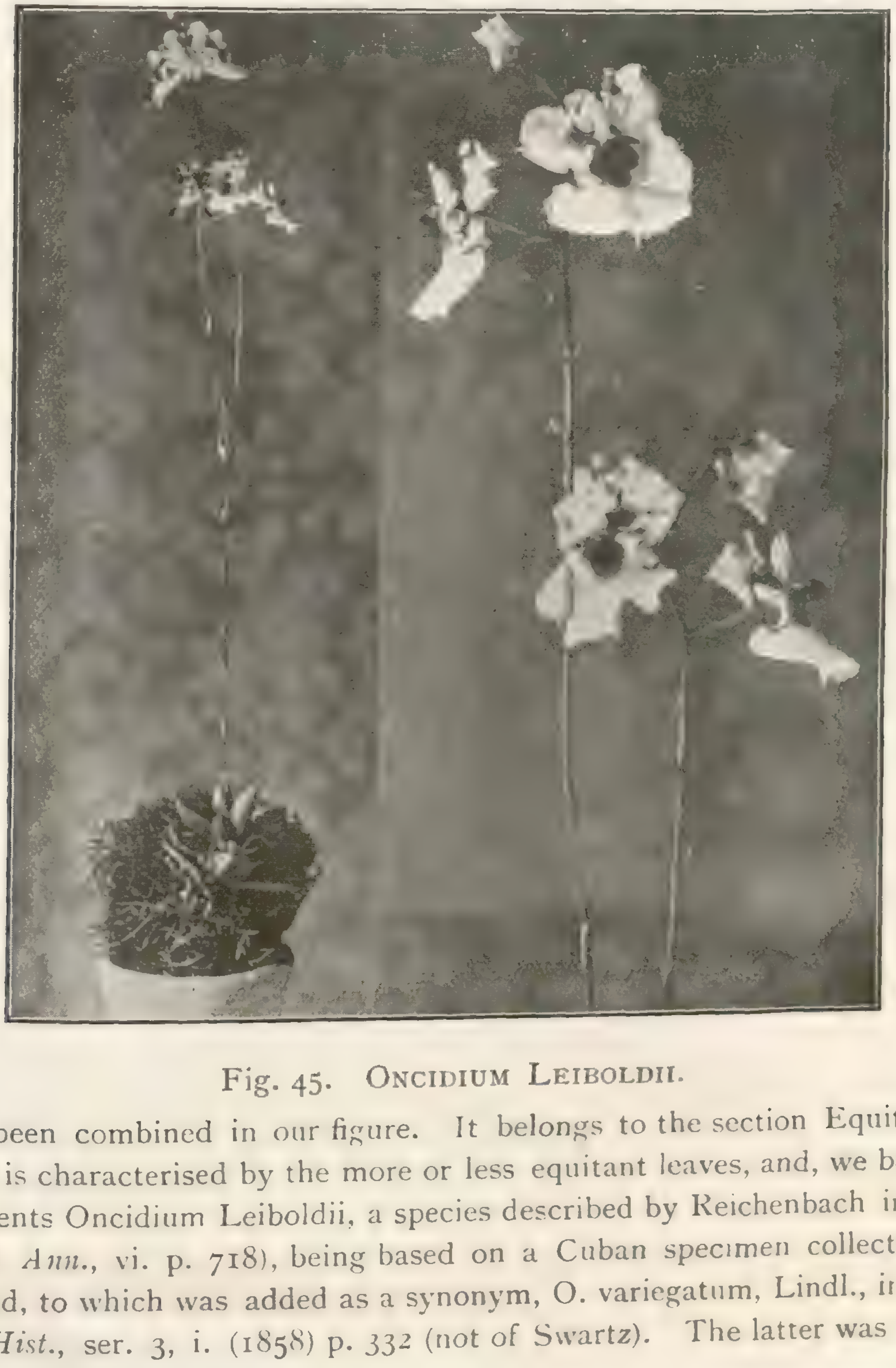

Fig. 45. ONCIDIUM LEIBOLDII.

have been combined in our figure. It belongs to the section Equitantia, which is characterised by the more or less equitant leaves, and, we believe, represents Oncidium Leiboldii, a species described by Reichenbach in 1863 (*Walp. Ann.*, vi. p. 718), being based on a Cuban specimen collected by Leibold, to which was added as a synonym, O. variegatum, Lindl., in *Ann. Nat. Hist.*, ser. 3, i. (1858) p. 332 (not of Swartz). The latter was based

on a specimen collected on bushes at Monte Verde, Cuba, by Wright (n. 668), and is accompanied by the note: "Flowers bright purple, lateral sepals and lateral lobes of labellum with a bright brownish spot at the base." There has been further confusion in the history of this plant. Grisebach (*Cat. Pl. Cub.*, p. 266) reduced O. Leiboldii as a synonym of O. variegatum, Swartz, together with what is called "O. Leiboldii var. velutinum, Lindl," for which n. 1759 of Wright's Cuban collection was cited. We do not find O. Leiboldii var. velutinum, Lindl., but what is clearly intended is O. velutinum, Lindl. (*Paxt. Fl. Gard.*, i. p. 166), which Lindley explains he had, at least in part, included under O. variegatum in his earlier *Orchidaceæ Lindenianæ*. And he adds: "The plant is stated by M. Linden to vary with white or rose-coloured flowers as well as in stature—a large form growing in the pine forests of Yatara, in Cuba, the smaller on coffee trees in the Sierra Maestre, and on the Liban Mountain." The number, Linden, 1759, is added in his later *Folia Orchidacea* (Oncid., p. 13), also St. Bartholomew's, Fornstrom, the latter, a specimen which had been sent to him by Reichenbach, being something different. Linden n. 1759 in Lindley's Herbarium contains two small specimens that clearly agree with the one here figured, and the Kew sheet of Wright n. 668 also contains a similar small piece, while another specimen was collected in 1895 by Combs (n. 532) at Loma de Ciego, Calicita, in the Cienfuegos district of the Province of Santa Clara, Cuba. Further information and specimens, with notes of colour, would be useful, for it is not clear how far the species mentioned grow intermixed. It is much smaller than O. velutinum, and we think quite distinct. It should be taken care of.

R.A.R.

ODONTOGLOSSUM GRANDE PITTIANUM.—A flower of this handsome yellow variety is sent from the collection of H. T. Pitt, Esq., Rosslyn, Stamford Hill (gr. Mr. Thurgood), which can best be described by saying that it is an O. grande with all the brown markings eliminated, these being replaced by deep yellow on a lighter yellow ground. It has been in Mr. Pitt's collection for over seventeen years, having received an Award of Merit from the R.H.S. in October, 1897 (*O.R.*, v. p. 291), and again two years later (vii. p. 319). A coloured plate has also appeared (*Cogn. et Gooss. Dict. Ic. Orch.*, Odont. t. 13A). It is also known under the latter name of O. grande aureum, having been exhibited at a meeting of the R.H.S. held in October, 1901, by the late Mr. R. Tunstill (*O.R.*, ix. p. 348), from whom we afterwards received a flower (x. p. 317). It also received a First-class Certificate from the Manchester Orchid Society in October, 1901 (*O.R.*, ix. p. 351), when exhibited by M. A. A. Peeters, Brussels. It is a very charming variety.

SOCIETIES.

ROYAL HORTICULTURAL.

A MEETING of the Society was held at the Royal Horticultural Hall, Vincent Square, Westminster, on November 3rd last, when there was a rather small display of Orchids, and the awards consisted of one First-class Certificate, four Awards of Merit, and three medals.

Orchid Committee present: J. Gurney Fowler, Esq. (in the Chair), Messrs. J. O'Brien (hon. sec.), R. A. Rolfe, F. M. Ogilvie, T. Armstrong, W. Cobb, J. Charlesworth, J. Cypher, J. E. Shill, S. W. Flory, W. P. Bound, H. G. Alexander, A. Dye, W. H. White, E. H. Davidson, W. Bolton, Gurney Wilson, De B. Crawshay, Sir Harry J. Veitch, and Sir Jeremiah Colman, Bart.

W. R. Lee, Esq., Plumpton Hall, Heywood (gr. Mr. Branch), sent Odontioda Schrœderi Lee's var. (O. Bradshawiæ × Odm. crispum), a particularly fine form, having broad, crimson-red sepals and petals, margined and tipped with lilac.

E. Whiteaway, Esq., Feltham Lodge, Feltham (gr. Mr. J. Tait), sent a flower of Brassocatlælia Gladys (C. × bicolor × B.-l. Veitchii), most resembling the latter.

Messrs. Charlesworth & Co., Haywards Heath, staged a choice group, including some good forms of Cattleya Fabia, C. Hybla (Iris × Trianæ), a handsome form most resembling the latter, a fine C. Portia, C. Enid, C. Antiope, C. Phrygia with six flowers, and others, some fine forms of Lælio-cattleya Neleus, L.-c. Thyone, a dark form of Odontioda Brewii, O. Wilsonii, and O. Madeline, Odontoglossum Aireworth, O. hibernicum, Paphinia cristata with a twin-flowered scape, Oncidium prætextum, Dendrobium Dearei, Cypripedium Lord Ossulston, and others (Silver Flora Medal).

Messrs. Sander & Sons, St. Albans, staged a fine group, containing some good examples of Cattleya Fabia, with C. Hardyana picturata, Mantinii, Acis (Maronii × Dowiana aurea), Brownii, Black-Prince, and Sylvia, Brassia longissima, Cœlogyne Mooreana and brunnea, the latter with six racemes, Saccolabium acutifolium with ten corymbs of flowers, Liparis longipes, Brassocattleya Siren, Odontonia MacNabiana, Odontoglossum percultum, Cypripedium Corsair (Niobe × nitens), Germaine Opoix, Fairrieanum, and others (Silver Flora Medal).

Messrs. Stuart Low & Co., Jarvisbrook, Sussex, staged a showy group, including some good forms of Læliocattleya luminosa, L.-c. eximia with six flowers, L.-c. Haroldiana × Cattleya F. W. Wigan, having yellow sepals and petals, more or less suffused and streaked with purple, and the

lip purple, with some yellow in the throat, fine forms of Cattleya Peetersii, C. Fabia and C. F. alba, well-flowered examples of Dendrobium superbiens, D. Phalænopsis in light and dark varieties, richly-coloured forms of Vanda cœrulea, Oncidium varicosum, O. incurvum album, and others (Silver Banksian Medal).

Messrs. Armstrong & Brown, Tunbridge Wells, sent the handsome Brassocattleya Leemanniæ Orchidhurst var., B.-c. Admiral Jellicoe (C. Rothschildiana × B.-c. Veitchii), having cream-white sepals and petals tinged with lilac and a rosy lilac lip, and Læliocattleya Hector (L.-c. Martinetii × C. Dowiana aurea), with yellow sepals and petals and a richly-coloured lip.

Messrs. Flory & Black, Orchid Nursery, Slough, sent a very good form of Anguloa Cliftonii, having much purple veining in the lip.

Mr. E. V. Low, Vale Bridge, Haywards Heath, sent the beautiful white forms of Cattleya labiata called La Vierge, Mrs. E. Ashworth, R. I. Measures' var., W. R. Lee, Daphne, and Pride of Southgate.

FIRST-CLASS CERTIFICATE.

SOPHROLÆLIA FELICIA FOWLER'S VAR. (S.-l. heatonensis × L. pumila).—A remarkably fine form, of excellent shape, having very broad, ruby purple sepals and petals, and a darker, undulate lip, the whole with an orange-scarlet hue which gives an effect of great brilliancy. Exhibited by J. Gurney Fowler, Esq., Brackenhurst, Pembury (gr. Mr. J. Davis).

AWARDS OF MERIT.

CATTLEYA ASTRON (Harrisoniana × Dusseldorfii Undine).—A very beautiful albino, having flowers of excellent shape, with a little light yellow in the throat of the lip. An Award of Merit was given on July 28th, but was withdrawn because a flower was not received for painting. Exhibited by Baron Bruno Schröder, The Dell, Englefield Green (gr. Mr. J. E. Shill).

CYPRIPEDIUM NIRVINA (parentage unrecorded).—A large and well-shaped flower, most like a fine C. Leeanum, and having a pure white dorsal sepal with a few purple spots and some green at the base. Exhibited by W. R. Lee, Esq.

LÆLIOCATTLEYA NELEUS VAR. SUNSPOT (C. Iris × L.-c. Ophir).—A handsome form, the inflorescence bearing three fine flowers, with chrome yellow sepals and petals, and the lip most approaching C. Iris in shape, and reddish crimson, with some yellow lines at the base. Exhibited by F. Menteith Ogilvie, Esq., The Shrubbery, Oxford (gr. Mr. Balmforth).

ODONTOGLOSSUM IRENE (Uroskinneri × Thompsonianum).—A striking thing, most like the former, and having plum purple sepals and petals, with whitish transverse bars, and a claret-purple lip, with a dark yellow crest. Exhibited by Messrs. Charlesworth & Co.

At the meeting held on November 17th there was a slight increase in the number of Orchid exhibits, and the awards consisted of four medals, two Awards of Merit, one Certificate of Appreciation, and one Cultural Commendation.

Orchid Committee present: J. Gurney Fowler, Esq. (in the Chair), Messrs. J. O'Brien (hon. sec.), Gurney Wilson, De B. Crawshay, W. Bolton, S. W. Flory, E. H. Davidson, A. Dye, J. E. Shill, H. J. Chapman, C. H. Curtis, W. H. Hatcher, J. Cypher, J. Charlesworth, W. Cobb, A. McBean, F. J. Hanbury, F. M. Ogilvie, R. A. Rolfe, J. Wilson Potter, Sir Harry J. Veitch, and Sir Jeremiah Colman, Bart.

Sir Jeremiah Colman, Bart., Gatton Park, Reigate (gr. Mr. Collier), sent a plant of the rare Dendrobium Tofftii, a Queensland species closely allied to the Philippine D. taurinum, and bearing an erect inflorescence with three flowers, tinged with lilac towards the apex of the sepals and petals and with a broad, purple lip.

J. T. Bennett-Pöe, Esq., Holmewood, Cheshunt (gr. Mr. Downes), sent a good form of Brassocattleya Maroniæ.

Messrs. Charlesworth & Co., Haywards Heath, staged a fine group, including a good series of blotched Odontoglossums, O. armainvillierense xanthotes, bearing a fine panicle, O. eximium xanthotes, a fine white form with a cluster of deep yellow spots on the centre of the sepals and on the lip, Odontioda Zenobia, Paphinia cristata with a twin-flowered spike, Cattleya Enid, C. Fabia alba, C. Portia with a fine spike of thirteen flowers, Sophronitis grandiflora, Læliocattleya Neleus, L.-c. St.-Gothard, the richly-coloured L.-c. Black-Prince, Brassocattleya Rutherfordii, and B.-c. Maroniæ alba, a promising hybrid from B.-c. Leemanniæ × L.-c. luminosa, bearing three fine flowers veined with yellow and purple, Dendrobium Dearei, good examples of Cypripedium Gaston Bultel, C. insigne Sanderæ, and others, with a row of Miltonia Bleuana and M. St.-Andre in front (Silver Flora Medal).

Messrs. J. Cypher & Sons, Cheltenham, staged a group of choice Cypripediums, in good examples, in which we noticed familiar forms of C. insigne and Leeanum, two well-grown C. Niobe, C. Madame Jules Hye, Boltonii, fulshawense, Gaston Bultel, beechense, elatior, C. Thalia Mrs. Francis Wellesley, and others (Silver Flora Medal).

Messrs. Stuart Low & Co., Jarvisbrook, Sussex, staged a fine group, containing three brilliantly-coloured Vanda cœrulea, a good example of V. Sanderiana with seven flowers, well-grown plants of Dendrobium Phalænopsis, Læliocattleya luminosa, two well-flowered Miltonia vexillaria Leopoldii, Cattleya labiata R. I. Measures' var., and good forms of the type, C. Hardyana alba, C. Fabia, C. Dowiana aurea, Oncidium varicosum and var. citrinum, the latter a charming clear yellow form without a trace

of brown, the pure white Cœlogyne Veitchii, Cypripedium insigne Sanderæ, Odontoglossum Rossianæ, some good O. crispum, and others (Silver Flora Medal).

Messrs. Sander & Sons, St. Albans, staged a fine group, including some richly-coloured forms of Cattleya Fabia, C. Fabia alba, C. Hardyana with nine flowers, C. Rhoda, Murillo, and Kienestiana, Læliocattleya Decia and Britannia, Brassocattleya Seaforth-Highlander (B.-c. Leemanniæ × L.-c. Aphrodite), pale rose with yellow throat, Cœlogyne brunnea, ocellata, and Mooreana, Aërides Lawrenceæ with three spikes, a richly-coloured Staŋhopea Wardii, Dendrobium formosum giganteum, a well-flowered Angræcum distichum, Maxillaria luteo-alba, the graceful Dendrochilum filiforme, Cypripedium Arthurianum, Corsair, and others, Odontonia MacNabiana, Odontioda Devosiana, Cirrhopetalum refractum, Odontoglossum Phœbe, &c. (Silver Flora Medal).

Messrs. Flory and Black, Orchid Nursery, Slough, sent a plant of the original *Zygocolax* Veitchii.

Messrs. Hassall & Co., Southgate, sent Cattleya Moira magnifica (Mantinii × Fabia), a richly-coloured hybrid, most like the former but larger in size, the yellow C. Sylvia sulphurea, and Læliocattleya Nestor (C. Warscewiczii × L.-c. Ophir), having white sepals and petals and a rosy lip.

Messrs. J. & A. McBean, Cooksbridge, sent Sophrocattleya Pearl (S.-c. Doris × C. Portia), a very promising hybrid, the plant bearing two bright rosy crimson flowers, with some yellow lines in the throat of the lip.

AWARDS OF MERIT.

ODONTOGLOSSUM CRISPUM MILLIE.—A very fine form, having broad, white sepals and petals, the former tinged with rose at the apex, and a cinnamon-coloured blotch on the lip. The inflorescence carried four flowers, and had just borne a seed capsule. Exhibited by Messrs. Flory & Black.

SOPHROCATTLEYA NOVEMBER (Cattleya Portia × Sophronitis grandiflora).—A handsome hybrid, showing much of the influence of the Cattleya parent, and having bright rose-purple sepals and petals, the latter being very broad, and a bright ruby-red lip, with some yellow in the throat. Exhibited by J. Gurney Fowler, Esq., Brackenhurst, Pembury (gr. Mr. J. Davis).

CERTIFICATE OF APPRECIATION.

CALANTHE BRANCHII (C. Textori × William Murray).—An interesting and beautiful hybrid between the evergreen and deciduous sections of the genus. The plant closely resembled the former in its numerous evergreen leaves, but the arching inflorescence and the shape and colour of the flowers very strongly recalled the latter. The sepals are white, the petals tinged with pink, and the lip and column rose-purple. Exhibited by C. J. Lucas, Esq., Warnham Court, Horsham (gr. Mr. Duncan).

CULTURAL COMMENDATION.

ODONTOGLOSSUM LAMBEAUIANUM.—To Mr. J. Davis, gr. to J. Gurney Fowler, Esq., for a well-grown plant, bearing a strong inflorescence, about four feet high, with eight side branches and an aggregate of 53 flowers.

MANCHESTER AND NORTH OF ENGLAND.

At the meeting held at the Coal Exchange, Manchester, on November 5th, 1914, the members of Committee present were:—Rev. J. Crombleholme (in the Chair), Messrs. R. Ashworth, J. Bamber, J. Cypher, J. Evans, A. Hanmer, J. Howes, A. J. Keeling, J. Lupton, D. McLeod, W. J. Morgan, C. Parker, W. Shackleton, H. Thorp, Z. A. Ward, G. Weatherby, and H. Arthur (Secretary).

Col. J. Rutherford, M.P., Blackburn (gr. Mr. Lupton), was awarded a Large Silver-gilt Medal for a fine group, in which Cattleya labiata was represented by a fine batch of white varieties, with C. Dusseldorfii Undine, C. Portia, C. Mantinii nobilior, Brassocattleyas, Læliocattleya Yellow Prince, Sophrocattleya Doris, Cymbidium Tracyanum, Oncidium varicosum Rogersii and prætextum, Epidendrum vitellinum, and others.

R. Ashworth, Esq., Newchurch (gr. Mr. Gilden), staged a mixed group, to which a Silver-gilt Medal was awarded. It contained a fine series of Cattleyas, Læliocattleya highfieldiense, Odontoglossum Twyford Gem, O. crispum xanthotes, and others, with choice Cypripediums of the season.

Wm. Thompson, Esq., Walton Grange (gr. Mr. Howes), was awarded a Large Silver Medal for a choice group of Cattleyas and Cypripediums, Miltonia vexillaria Leopoldii, and others.

Z. A. Ward, Esq., Northenden (gr. Mr. Weatherby), was also awarded a Large Silver Medal for a group of well-grown Cypripediums, Cattleya Rothschildiana alba, C. Ella, &c.

Mrs. R. le Doux, West Derby (gr. Mr. J. W. Fletcher), was awarded a Silver Medal for a group of Cattleyas, Cypripedium R. le Doux, Gaston Bultel, Hannibal, and others.

O. O. Wrigley, Esq., Bury (gr. Mr. Rogers), staged ten plants of Cypripedium Maudiæ, nine of C. Fairrieanum, C. Boltonii, and others, with some good Epidendrum vitellinum, and a few Cattleyas.

H. J. Bromilow, Esq., Rainhill (gr. Mr. W. J. Morgan), sent Cypripedium Reginald Young and C. Earl of Tankerville × Fairrieanum.

Messrs. Sander & Sons, St. Albans, were awarded a Silver Medal for a group of Cattleyas, Læliocattleya Walter Gott, Cypripedium Moonbeam × Leeanum Prospero, Cœlogyne Mooreana, Saccolabium acutifolium, Dendrochilum uncatum, and others.

Messrs. A. J. Keeling & Sons, Bradford, sent some good Cypripediums, Cattleya Dusseldorfii Undine, and Odontoglossum seedlings.

Mr. E. V. Low, Haywards Heath, staged a batch of white Cattleya labiata, in the following varieties: Daphne, La Vierge, Pride of Southgate, W. R. Lee, Mrs. R. Ashworth, and R. I. Measures.

Messrs. Hassall & Co., Southgate, staged Cattleya Beatrice, Sybil, Sylvia, and Sophrocatlælia Marathon.

Mr. W. Shackleton, Highfield, Bradford, sent Cypripedium Niobe and C. niveum × bellatulum.

Mr. D. McLeod, Chorlton-cum-Hardy, staged a fine Odontioda, Cypripedium Reginald Young, and seedlings.

FIRST-CLASS CERTIFICATE.

Cattleya Peetersii alba West Point var., a well-set flower, with sepals and petals of the purest white, and a brilliantly-coloured lip, from S. Gratrix, Esq.

AWARDS OF MERIT.

Odontoglossum Noel, O. Jeanette var. rubellum, Cattleya Sylvia var. atrorubens, and Cypripedium Idina (insigne Harefield Hall var. × Countess of Carnarvon), all from Wm. Thompson, Esq.

Brassocattleya sulphurea (C. Gaskelliana alba × B.-c. Mrs. Leemann), from R. Ashworth, Esq.

Cattleya Armstrongiæ Cringlewood var., from Z. A. Ward, Esq.

Cattleya Fabia Fire King, from Mrs. R. le Doux.

Cypripedium Draco var. Cyclops (Euryades New Hall Hey × insigne Harefield Hall var.), from S. Gratrix, Esq.

AWARDS OF APPRECIATION.

Cattleya Fabia alba, from Wm. Thompson, Esq.

Cattleya labiata Rosy Morn, from Col. J. Rutherford, M.P.

Odontonia McNabiana (O. Edwardii × M. vexillaria Bleuana), from Messrs. Sander & Sons.

Cypripedium Gen. Joffre (Leeanum Lavertonianum × Ceres), from Messrs. Keeling & Sons.

FIRST-CLASS BOTANICAL CERTIFICATE.

Cœlogyne brunnea, from Messrs. Sander & Sons.

CULTURAL CERTIFICATE.

To Mr. J. Weatherby, gardener to Z. A. Ward, Esq., for a fine example of Cattleya Armstrongiæ Cringlewood var.

At the meeting held on November 19th, the members of Committee present were: Rev. J. Crombleholme (in the chair), Messrs. R. Ashworth, J. Bamber, J. Cypher, A. G. Ellwood, J. Evans, A. Hanmer, J. Howes, A. J. Keeling, D. McLeod, W. J. Morgan, C. Parker, W. Shackleton, H. Thorp, Z. A. Ward, G. Weatherby, and H. Arthur (Secretary).

Large Silver Medals were awarded to R. Ashworth, Esq., Newchurch

(gr. Mr. Gilden); Col. J. Rutherford, M.P., Blackburn (gr. Mr. Lupton), and Messrs. Cypher & Sons, Cheltenham, for fine miscellaneous groups.

A Silver Medal was awarded to Wm. Thompson, Esq., Walton Grange (gr. Mr. Howes), for a fine general group.

Interesting exhibits were sent by S. Gratrix, Esq., Whalley Range (gr. Mr. Brown); Z. A. Ward, Esq., Northenden (gr. Mr. Weatherby); P. Smith, Esq., Ashton-on-Mersey (gr. Mr. E. Thompson); H. J. Bromilow, Esq., Rann Lea (gr. Mr. W. J. Morgan); Messrs. Sander & Sons, St. Albans; Messrs. Keeling & Sons, Bradford; Messrs. J. & A. McBean, Cooksbridge (including Cypripedium Draco × Euryades); Messrs. Charlesworth & Co., Haywards Heath, and Mr. W. Shackleton, Bradford.

FIRST-CLASS CERTIFICATES.

Odontoglossum crispum hololeucum, a large round flower, with a distinct yellow blotch on the lip, and O. Hermese, a large well-set flower; petals almost solid madder crimson, and sepals of a brown shade, from Wm. Thompson, Esq.

Odontoglossum crispum Mrs. J. Helm (Rossendale × Empress of India), a large flower with heavy blotches of a crimson madder colour, and Cattleya Alcimedia var. Antiochus (Gaskelliana alba × labiata alba), a fine flower, with broad segments and distinct yellow lines in the throat, both from R. Ashworth, Esq.

Odontoglossum Zulu (Harryanum × eximium), a large flower of good substance; sepals and petals solid crimson madder, with purple lined tips and white edges, and a good flat lip, from Z. A. Ward, Esq.

AWARDS OF MERIT.

Cypripedium Actæus Ethel (Leeanum Clinkaberryanum × insigne Harefield Hall), C. Royal George (Harrisianum × Minos Youngii), and Cattleya Helius var. Mary Amelia (Iris × Dowiana aurea), all from S. Gratrix, Esq.

Cattleya labiata Andromache and Sophrocattleya Pearl (C. Portia × S.-c. Doris), both from R. Ashworth, Esq.

Cypripedium Eileen (Euryades × Beeckmanii), from Wm. Thompson, Esq.

Cypripedium Selene (triumphans × Godefroyæ), from H. J. Bromilow, Esq.

Cypripedium Reginald Young var. Calliope (insigne Harefield Hall × Hitchinsiæ), from Messrs. A. J. Keeling & Sons.

ORCHIDS AT THE NEW YORK EXHIBITION.

The Autumn Exhibition of the New York Horticultural Society was held at the Museum of Natural History, New York City, from October 30th to November 3rd, and we extract from our contemporary, *Horticulture*,

the following account of the Orchids shown. It is remarked: "This is always a free show, being located in a public institution, and the item of financial support does not have any bearing upon the numerical attendance.

Next to the specimen Chrysanthemums the feature that seemed to appeal most strongly to the visiting people was the Orchid section. The two big competitive groups of Orchids by Messrs. Julius Roehrs Co. and Messrs. Lager & Hurrell were superb, not only in the beauty and variety of the material composing them but in the arrangement, which was graceful and artistic. Another great Orchid group, in the rarity and value of the varieties especially, was that of Clement Moore, gardener J. Mossman. Jos. A. Manda also had some very worthy specimen Cattleyas and Oncidiums. For a novelty not before exhibited by this Society Julius Roehrs Company were awarded the Silver Medal for a lovely plant of Cattleya Fabia × C. Mantinii. The flowers are intermediate in size between C. labiata and C. Bowringiana, and the colour is the most intense deep crimson imaginable. The award list is as follows:—

Orchids, Commercial Collection: Julius Roehrs Co.; Lager & Hurrell. Novelty: Julius Roehrs Co., Silver Medal. Six Cattleyas: Jos. A. Manda, Julius Roehrs Co. Six varieties: Julius Roehrs Co. Three Cattleya labiata: J. Roehrs Co., J. A. Manda. Three varieties: J. A. Manda. Specimen: Julius Roehrs Co. Orchids, non-commercial: Collection, Clement Moore. Specimen Cattleya: J. Smith, Clement Moore. Specimen Oncidium: R. Heidkamp. Display Hybrid Cattleyas, &c.: Clement Moore, Gold Medal.

In the non-competitive classes J. A. Manda, W. Orange, N.J., received a Silver Medal for Orchids.

ORCHIDS AT THE PHILADELPHIA EXHIBITION.

We also learn from *Horticulture* that Orchids were included in the 86th Annual Exhibition and Chrysanthemum Show of the Pennsylvania Horticultural Society, which was opened in the Horticultural Hall, Philadelphia, on November 3rd. The Show was crowded to the doors, and it was the concensus of opinion, both of connoisseurs and neophytes, that it was the finest aggregation of chrysanthemums, foliage plants, and Orchids exhibited in recent years. Louis Burk's display of Orchids, as also that of Alphonse Pericat were things of beauty and a joy for ever, or would be if such delicate blooms would last for ever, and were surrounded as usual by groups of admirers.

OTHER AMERICAN EXHIBITIONS.

At the Show of the Massachusetts Horticultural Society, held at the Horticultural Hall, Boston, on November 5th to 8th, we learn that "the Orchid groups were among the prime attractions, the principal exhibitors being F. Dolansky and J. T. Butterworth, both commercial men. We

have seldom seen a healthier, richer collection of Cattleyas than were staged by Mr. Dolansky in his first prize group. These were interspersed with Phalænopsis and Dendrobium Phalænopsis. J. T. Butterworth had a very graceful group in which Oncidiums and Odontoglossums figured strongly."

At the Westchester and Fairfield Show, held in the Germanic Hall, New Rochelle, N.Y., on November 4th to 6th, "Geo. E. Baldwin Co., of Mamaroneck, displayed Orchid plants in bloom, comprising many rare and choice varieties. A Certificate of Merit was awarded this exhibit, also to a splendid specimen Cattleya labiata." The prize list also includes the name of Hobart J. Park (gr. A. L. Marshall) for a specimen Orchid and for Orchid flowers.

At the Show of the Tarrytown Horticultural Society, held in the Music Hall, Tarrytown, N.Y., on November 4th to 6th, Finley J. Shepard, Supt. Chas. R. Russell, won the Mrs. Stuyvesant Fish Cup for cut Orchids, Henry Graves, junr., prize for Orchid display. The table of Orchids by Finley J. Shepherd was very beautiful.

At the Nassau County Horticultural Society's Show, held at Glen Cove, N.Y., on October 29th and 30th, the Julius Roehrs Special Prize for Orchids was won by Percy Chubb.

At the Tuxedo Horticultural Society's Show held at the Tuxedo Club from October 30th to November 1st, Messrs. Lager & Hurrell were awarded a prize for an Orchid plant.

LÆLIOCATTLEYA CHAMBERLAINIANA.—Some time ago a cross was made in the collection of the late Rt. Hon. Joseph Chamberlain, M.P., between Læliocattleya Amelia and L.-c. elegans Turneri, and a flower of one of the seedlings has now been sent to Kew by Mr. Austen Chamberlain, M.P., with the request that, if new, the name of his father should be associated with it. Four species are involved in its ancestry, namely, Cattleya intermedia, C. Leopoldii, Lælia purpurata, and L. cinnabarina, and of these the latter has exerted a greatly preponderating influence in the seedling which has now bloomed, for the flower is of a shade of reddish cinnabar-orange, with the front of the somewhat crisped lip ruby-purple. Other seedlings may, of course, show the influence of the other species more strongly. The plant has at present produced an inflorescence of four flowers, and has not reached its full development. Judging from its composition the hybrid should be of a free-growing and floriferous character. It is curious to note that the crossing of Cattleya intricata with Lælia Latona would yield a hybrid of identical specific composition, as also would the crossing of Læliocattleya Schilleriana with a hybrid between Cattleya Leopoldii and Lælia cinnabarina.

ORCHIDS IN SEASON.

A FLOWER of a very promising seedling, called Odontoglossum crispum memoria Lord Roberts, is sent from the collection of H. T. Pitt, Esq., Rosslyn, Stamford Hill. Mr. Pitt states that it was raised from O. crispum Ashworthianum × O. c. Oakwood Sunrise, the latter a well-known form in which the blotches occur on the petals, not on the sepals, and, as usual, when these abnormal forms are used, the influence of the pollen parent cannot be traced. The seedling has broad white segments closely blotched all over with red-purple, and as the plant is very small at present, and only producing its first flower, it should develop into a very handsome thing.

At the R.H.S. meeting held on November 17th last, a pretty little hybrid of unknown parentage was exhibited by Messrs. Sander & Sons, St. Albans, under the name of Odontonia Princess Marie Jose, of which a flower was afterwards sent to us. As in the case of O. brugensis and O. MacNabiana, the influence of Odontoglossum Thompsonianum is very apparent, but the Miltonia parent is not so obvious, though we suggest M. Bleuana. The ground colour is lilac, with a small violet-purple blotch at the base of the sepals, and the lower half of the petals is violet, while there is a circular brown blotch on the base of the lip. It may be a variety of O. MacNabiana.

GRAMMATOPHYLLUM SPECIOSUM.—The *Kew Bulletin* announces that a large plant of Grammatophyllum speciosum presented to Kew by Messrs. Sander & Sons, and since then one of the principal features of the Victoria House, is again flowering. Owing to its having been found necessary to reduce the plant last year by removing the oldest pseudobulbs, it has on this occasion only one flower-spike, about 7 feet in height, and carrying over 50 flowers and buds. A better idea of the capabilities of this remarkable Orchid was obtained when the Kew specimen flowered in 1907. It then developed three racemes; the tallest attained nearly 11 feet in height, and had, at one time, 82 expanded flowers and 40 unopened buds in various stages of development, the other two racemes being only slightly smaller. The flowers have a spice-like odour and good lasting qualities. Their ground colour is dull yellow, heavily spotted with reddish brown; the sepals and petals are spreading, broadly oblong, obtuse, undulate; the lip is small, being scarcely 1in. long, three-lobed, orange streaked with red, the disc sulcate, with three raised plates, bristling with short hairs. G. speciosum is the most common of the three or four species inhabiting the Malay Archipelago and Malacca. In a wild state, or

cultivated in tropical gardens, it forms enormous masses on large trees, producing as many as fifty flower-spikes at one time. It was first flowered in this country in 1851. The Kew plant was one of the largest that could be found in the neighbourhood of Penang. It was originally intended for the Chicago Exposition, but, meeting with an accident during the voyage to England, it was decided not to send it any further.

THE AMATEUR'S COLLECTION.

By C. ALWYN HARRISON.

WE are now right in the midst of winter, and much care and thought is needed with the methods of culture. Damping and syringing should be performed on much the same lines as advocated last month, and air should be admitted whenever the outside conditions are at all favourable. Top ventilation is seldom possible at this season, as it often causes the temperature to fall unduly, a thing to be specially avoided. But the bottom ventilators can generally be used, for these, being situated on a level with the hot water pipes, enable the air to be warmed before it reaches the plants. For this and the next month 55° to 60° Fahr. by day and 50° to 55° by night are usually regarded as the maximum and minimum degrees of warmth, and should be adhered to as closely as possible.

Continue cleaning any plants, and at this dull season it is a good plan to begin at one end and go right through the house, cleaning rhizomes, sponging leaves and tying up any bulbs which are inclined to grow out of place. Any Orchids which are in bud are worthy of additional care, and if possible should be suspended near the roof glass, where they will get more light, and consequently develop to a fuller extent. But they must not be hung too near the roof ventilators, for a considerable amount of chilly night air is often found to percolate through, even if these are kept closed, and this until warmed is injurious to any young growth.

Any plants at rest, particularly Cattleyas of the Bowringiana and labiata section, together with Odontoglossum grande, should be kept only just damp enough to prevent the bulbs from shrivelling. Many Cypripediums, particularly of the insigne section, and such Oncidiums as Forbesii, tigrinum, and a few others are now in flower, and should receive a fair amount of water. Dendrobiums finishing their growth should be kept now almost dry, but any in the Vinery or cooler house showing signs of flowering, should be gradually introduced to the warmer house, and water given in increasing quantity. Evergreen Dendrobiums, such as chrysotoxum, densiflorum, and thyrsiflorum, also D. fimbriatum oculatum, must not be removed to the Cool house, but are best rested at the coolest end of the Warm house and very sparingly watered.

ORCHID NOTES AND NEWS.

TWO meetings of the Royal Horticultural Society will be held at the Royal Horticultural Hall, Vincent Square, Westminster, during December, on the 1st and 15th, when the Orchid Committee will meet at the usual hour, 12 o'clock noon. The first meeting of the New Year is fixed for January 5th.

The Manchester and North of England Orchid Society will hold meetings at the Coal Exchange, Manchester, on December 3rd and 17th. The Committee meets at noon, and the exhibits are open to inspection of members and the public from 1 to 4 p.m.

The programme of the Kew Gardeners' Mutual Improvement Society for the 1914-1915 session contains two papers relating to Orchids. The subject for December 21st, 1914, is "Orchids," by S. H. Miles, and for January 11th, 1915, "Orchid Culture in Belgium," by P. Chollet. On March 22nd there is a paper on "Mendelism," by R. Sudell, with lantern illustrations.

THE ROLL OF HONOUR.—Our readers, we are sure, will join us in offering our sincere condolence to Lt.-Col. Sir David Prain, F.R.S., Director of the Royal Botanic Gardens, Kew, on the death of his only son, Lieutenant T. Prain, of the Leicestershire Regiment, who has been killed in action.

CHATSWORTH SEVENTY YEARS AGO.—Under this title the *Gardeners' Chronicle* cites from its pages of seventy years ago an interesting paragraph in which we find a reference to Orchids, in which the Duke of Devonshire took a special interest. Speaking of the garden near Mr. Paxton's residence it is remarked: "In the same part of the grounds will be found the Orchidaceous house, crowded with plants in rude health, and tastefully arranged with trunks of trees, so as to resemble an old grove." This method of culture has now been quite superseded.

R.H.S. SCIENTIFIC COMMITTEE.—The following references to Orchids exhibited at the meetings of the Committee are taken from the Official Report (continued from page 128):—

March 10th: "REVERSION" IN ODONTIODA.—Mr. R. A. Rolfe showed a flower of the cross Odontioda Bradshawiæ Cookson's var. × Odontoglossum spectabile, from the collection of Clive Cookson, Esq., Wylam-on-Tyne. The flower closely resembled the Odontioda in shape, but the scarlet colour was entirely suppressed. The flower was white with a few

light brown spots round the yellow crest of the lip, and a little brown spotting at the base of the lateral sepals.

April 7th: CYMBIDIUM MADIDUM.—Mr. Bennett-Pöe showed an inflorescence of C. madidum (C. albucæflorum), a species native in North Australia and rarely seen in cultivation.

April 21st: ABNORMAL DENDROBIUM WARDIANUM.—Mr. Chittenden showed an abnormal flower of D. Wardianum from Wisley, which Mr. Wordsdell examined and reported upon as follows: "Dimerous flower; two lateral sepals fused into one, which occupies place of labellum, causing the latter to disappear. Lateral sepals displaced into a position at right angles to the fore and aft sepals. Column normal."

November 17th:—

DENDROBIUM TOFFTII.—A Botanical Certificate was unanimously recommended to Dendrobium Tofftii, a native of Queensland, and allied to D. taurinum, shown by Sir Jeremiah Colman, Bart., V.M.H., referred to this Committee from the Orchid Committee. Its flowers are borne at the apex of a leafy pseudobulb.

CALANTHE BRANCHII.—This interesting hybrid between the ever-green Calanthe Textori and the deciduous C. × Bryan "Wm. Murray," the first raised hybrid between these two sections, was shown by Mr. C. J. Lucas, Warnham Court. Its habit was that of C. Textori, while the inflorescence was like that of its other parent. It followed the latter also in the size of its flowers, which were somewhat less bright than those of "William Murray," but coloured and much larger than those of C. Textori. A Certificate of Appreciation was recommended to Mr. Lucas for the work done in making this interesting cross, and a Botanical Certificate to the plant. [A Certificate of Appreciation was also awarded by the Orchid Committee (see p. 366). The remark that it is the first hybrid between the two sections is a mistake, for C. albata (veratrifolia × Cooksonii) appeared as long ago as 1896 (*O.R.*, iv. p. 376), and C. Elwesii (veratrifolia × Regnieri) somewhat later.—ED.]

MR. W. H. WHITE.—We have pleasure in announcing that Mr. W. H. White, who for so many years had charge of the rich collection of the late Sir Trevor Lawrence, Bart., Burford, Dorking, will contribute the Calendar of Operations to the *Orchid Review* for the coming year. The high standard of culture maintained at Burford is well known, and the experience gained in dealing with such a varied collection, both as species and hybrids, should render his advice specially valuable. An immense number of choice botanical rarities are grown, and many of them take up comparatively little space. It may be interesting to recall that Mr. White also contributed the Calendar to our first volume.

ORCHID PORTRAITS.

ANCISTROCHILUS THOMSONIANUS.—*Orch. World*, v. p. 37, fig.

BARKERIA ELEGANS.—*Orch. World*, v. p. 39, fig.

BARKERIA LINDLEYANUM —*Orch. World*, v. p. 39, fig.

BARKERIA SKINNERI.—*Orch. World*, v. p. 39, fig.

CATTLEYA MAGGIE RAPHAEL ALBA.—*Orch. World*, v. p. 34, fig.

CŒLOGYNE BRACHYTERA, Rchb. f.—*Bot. Mag.*, t. 8582.

CYMBIDIUM TRACYANUM.—*Journ. Hort.*, 1914, ii. p. 295, fig.

CYPRIPEDIUM GODEFROYÆ LEUCOCHILUM VAR. HODGKINSONII.—*Orch. World*, v. p. 28, fig.

CYPRIPEDIUM NIRVANA.—*Gard. Mag.*, 1914, p. 789, fig.

DENDROBIUM CRASSINODE.—*Orch. World*, v. p. 43, fig.

GRAMMATOPHYLLUM SPECIOSUM.—*Gard. Chron.*, 1914, ii. pp. 325, 327, fig. 129.

LÆLIOCATTLEYA LUMINOSA CANARY.—*Orch. World*, v. p. 31, fig.

LÆLIOCATTLEYA SUNSTAR.—*Orch. World*, v. p. 32, fig.

MASDEVALLIA EPHIPPIUM.—*Orch. World*, v. p. 48, fig.

MILTONIA VEXILLARIA MEMORIA G. D. OWEN.—*Journ. Hort.*, 1914, ii. p. 329, fig.

ODONTOGLOSSUM MOGUL.—*Orch. World*, v. p. 27, fig.

SCUTICARIA STEELEI.—*Orch. World*, v. p. 38, fig.

SOPHROCATTLEYA NOVEMBER.—*Gard. Chron.*, 1914, ii. pp. 342, 351, fig. 136.

SOPHROLÆLIA FELICIA FOWLER'S VAR.—*Gard. Chron.*, 1914, ii. p. 123, fig. 124.

ANSWERS TO CORRESPONDENTS.

[*Orchids are named and questions answered here as far as possible. Correspondents are requested to give the native country or parentage of plants sent. An* ADDRESSED *postcard must be sent if a reply by post is desired (abroad, reply postcards should be used). Subjects of special interest will be dealt with in the body of the work*]

We beg to thenk several American correspondents for messages of sympathy and good wishes during the present national crisis.

Received.—H.T,P. ; S. & P. ; F.W.T. ; T.L.M.

F.K.S.—Many thanks ; the records are being duly incorporated,

Photographs received with thanks.—F. J. Le M. ; J. S. da C.

The preparation of the annual Index has entailed a little unavoidable delay in the issue of the present number. Several articles and notes are also postponed through pressure on our space.

ERRATUM.—Page 119—for Dendrobium glumaceum read Dendrochilum glumaceum.

INDEX.

ACQUIRED characters, 294.
Adaptations, 67, 212, 261, 293, 294.
Adioda St.-Fuscien, 215.
Aërides, 44; odoratum at Marlfield, 209; cornutum, 318; retusum, 282.
Aganisia brachystalix, 200.
Albinos, 354, 355; self fertilised, 354.
Amateur's Collection, 29, 59, 90, 122, 139, 192, 207, 242, 285, 314, 336, 373.
American Exhibitions, 369-371.
Amphimixis, 291, 292.
Anglo-American Exhibition, 64.
Angræcum birrimense, 272; Ellisii, 283; funale, 74; Lindenii, 74; sesquipedale, 283, 284; Smithii, 74; superbum, 283; Veitchii, 61.
Angræcums, 44; in Madagascar, 283; leafless, 74.
Anguloas, 144. Anœctochili, 166.
Ansellia gigantea, 239.
Answers to Correspondents, 32, 64, 96, 128, 160, 192, 224, 256, 288, 320, 352, 376.
Antirrhinum, crosses, 292; secondary crosses, 259; stable hybrid, 67, 70.
Arachnanthe Cathcartii, 356; Clarkei, 349; Lowii, 35; moschifera, 286.

BABINGTON, Prof., analytical methods, 261.
Barnard, Mr. H., 206.
Bateson on Heredity and Evolution, 258.
Bateson's Challenge to Darwinism, 258.
Bernard on Fungus-Co-operation, 68, 69.
Bifrenaria Harrisoniæ, 174.
Blinds for Orchids, 18.
Book, Review of—
Harrison, *Commercial Orchid Growing*, 158; Schlechter, *Die Orchideen*, 221.
Botanical Magazine, 323.
Brassavola Digbyana, 9, 10, 15, 38, 83; and its hybrids, 9, 38; glauca, 11, 83.
Brassia Forgetiana, 248.
Brassocatlælia Albatross, 216; Ariel, 54, 58; Baroness, 38; Everest, 190; Gladys, 363; gloriosa, 154; Hylas, 186; Norba, 309; Wotan, 341.
Brassocattleya Admiral Jellicoe, 364; Alexanderi, 14; beardwoodiensis, 153; Cecilia, 54, 58; Cliftonii var. magnifica, 14, 16; Dora, 248; Hyeæ, 15, 16; Ilene, 247; Irene, 216; Leemanniæ, 13, 16, 91, (× L.-c. luminosa), 365; Mariæ, 239; Maroniæ, 12, 15, (× C. Mendelii), 151; Pocahontas Undine, 152; Princess Elizabeth, 149; Rex, 214; sandhaghensis, 16; Seaforth-Highlander, 366; Sedenii, 13; Shilliana, 181; sulphurea, 368; Sylvia, 115; Thorntonii, 14; Veitchii, 13; V. Holford's var., 11, 15; William Pitt, 117.
Brassolælia Helen, 16, 17; Madame Irene Mavrocordato, 310; Rolfei, 239.
Bulbophyllum amplebracteatum, 199; cocoinum, 272; conchiferum, 315; elatius, 298, 308; Fletcherianum, 164, 180, 204; Gentilii, 349; grandiflorum, 303; rigidum, 315; rostriceps, 272; rufinum, 315; vitiense, 272.

CALANTHE Angela, 354; Branchii, 366, 375; Chapmanii, 354; Cooksoniæ, 177; Dominyi, 102, 355; kewensis, 31; Veitchii, 354, (× vestita), 25.
Calanthe hybrids, 354.
Calanthes, 20, 78, 234, 357.
Calendar of Operations, 18, 43, 77, 109, 141, 172, 210, 234, 275, 299, 330, 357.
Campylocentrum, 74.
Catalogue, an old, 279.
Catasetum macrocarpum, 334, (female of), 336, (sexes of), 334; splendens, 316; tridentatum, 334.
Catasetum, female flowers of, 286; hermaphrodite, 335. Catasetums, 112, 316.
Cattleya Acis, 363; Ajax Orchidhurst var., 341; Alcimedia var. Antiochus, 369; amabilis Fowler's var., 312; Antiope, 310, 339; Astron, 248, 364; Atalanta, 312; Beatrice, 311; Bronze-King, 338; Chamberlainiana, 238; Clymene, 243; Dominiana, 102; Dusseldorfii Undine, 354; Eldorado, 269; Empress-Frederick, 189; E.-F. alba, 342; Enchantress, 244; Fabia (× Mantinii), 370; Freya, 48; Gaskelliana (× Atalanta), 287; General Smith-Dorrien, 343; Gladys, 319; Gravesiana amabilis, 149; guttata, 311, 318; Hardyana alba, 311; H. Countess of Derby, 310, 311; H. rubens, 248; Harrisoniana alba (× L.-c. Constance Wigan), 310; Helius var. Mary Amelia, 369; Hybla, 363; hybrida, 102; Ingramiæ alba, 308; intermedia alba, 182; Irene, 218; irides-cens, 265; i. aurifera, 309; Katie, 309; labiata 338, (× L.-c. luminosa), 115; (white forms of), 364, 368; Leopoldii alba, 302, 308; Loddigesii Snowflake, 308; Magali-Sander, 181, 190; Maggie Raphael Dell var., 23; Magnet. 146; Mendelii Fairy Queen, 215; Miss Harris, 102; Moira, 204; M. magnifica, 366; Mossiæ (× Lælia Latona), 186, (white varieties of), 351; M. Wageneri, 216, (home raised), 215, 216; Murrayi fulgens, 102; Murillo, 319; O'Brieniana alba, 341; Percivaliana (× Lælia anceps Schrœderæ), 83; P. alba Lady Holford, 25; P. Albatross, 52; P. Little Gem, 86; Princess-Royal, 339, 341; Queen Elizabeth, 348; Rhoda Fowler's var., 339; Schrœderæ Queen Empress, 182; Snowdon, 341; sphenophora, 318; Sibyl, 215; Suzanne Hye de Cron, 86; Sybil, 215, 265, 266, 269, 289, 311, (and its varieties), 265; S. citrina, 339; S. Lord Kitchener, 289, 297, 309: Thela, 310; Tityus var. A. McBean, 54; T. Shrubbery var., 148; T. Southfield var., 117; Trianæ Mrs. de Barri Crawshay, 84; T. Mrs. Phillips, 84; venusta, 307; Vulcan (× C. Dowiana), 245; Warneri, 213; Warscewiczii, 247; W. Frau Melanie Beyrodt, 240; W. Meteor, 218; William Murray fulgens, 102.

Cattleya, crosses, 205; fly, 261; root fly, 261; scarlet, 38; seeds (sowing), 46.
Cattleyas, 80, 189, 359; hybrid (resting), 263; of the labiata group, 262; resting of, 262; seedling, 80; watering, 263.
Cells, division of, 291; egg, 291; germ, 212; reduction-division of, 268; reproductive, 268; somatic, 291; union of, 291.
Chamberlain, Joseph—In Memoriam, 295.
Chamberlain, Mr. J., and Orchids, 238, 239; and the Orchid Review, 239; Nomenclature of Hybrids, 239.
Chapman, H. J., Some Results of Orchid Hybridisation, 353.
Characters, acquired, 292; blastogenic, 292, 293, 294; non-adaptive, 292; recent, 292.
Charlesworth's Catalogue of Orchids for 1914, 132.
Chatsworth seventy years ago, 374.
Chromosomes, 268.
Chondrorhyncha bicolor, 91.
Cirrhopetalum Mastersianum, 126.
Cirrhopetalum flower, 195.
Classification, 72.
Cochlioda Nœtzliana, 38.
Cœlogyne annamensis, 271; cristata, 21; Dayana, 173; pandurata, 236; p. Orchidhurst var. 151; pogonioides, 108.
Cœlogynes in Borneo, 6.
Collectors, Hints for, 199.
Colman, Sir Jeremiah, Bart., V.M.H., 356.
Colour polymorphism, 196.
Corallorhiza innata, 287.
Coryanthes, 173.
Cowan, Mr. D. A., 255.
Crossing, 295; new characters by, 269.
Cycnoches chlorochilon, seeds of, 260; densiflorum, 260; ventricosum and Egertonianum on the same raceme, 201.
Cycnoches, 260, 261; dimorphism of, 260; secondary sexual characters, 261; seeds, 260; sexes of, 260.
Cymbidium Alexanderi Hamilton-Smith's var., 87; amabile, 147, 231; Ballianum, 131; Coningsbyanum, 58; Cooperi, 94, 131; Dryad, 95; giganteum, 131; giganteum (× insigne), 83, (× Tracyanum), 116; glebelandense, 131; g. roseum, 131, 149; Gottianum Westonbirt var., 84; I'Ansonii, 132, 151; insigne, 131; Iona, 86; J. Davis, 131; Lowianum nanum, 156; Lowio-Mastersii (× insigne), 115; madidum, 375; Mandaianum, 132; Nada, 51; Parishii var. Sanderæ, 131, 146; Pauwelsii, 55; rhodochilum, 143; Sappho, 214; Schlegelii, 52; S. Southfield var., 84; Schrœderi, 131; Tracyanum, 132, (× Lowianum), 132; Venus, 181, 190.
Cymbidiums, 141.
Cypripedes, American, 353, 354.
Cypripedieæ, genera of, 355; Old World, 353, 354.
Cypripedium Actæus, 353; A. Ethel, 369; Alcibiades (× Leeanum), 28; Arachne, 22; Artemis aureum, 22; aure-Euryades, 88; Bassano (× Fairrieanum), 83; bellatulum Richard Ashworth, 183; Beryl, 94; bourtonense, 25; Brunette, 31; Bryan (× callosum), 312; calurum, 97; cardinale, 97; Cardinal Schlim, 97; Cassius, 23; Chamberlainianum, 239; Charlesworthii, 166; Comorin, 51; Corsair, 363; Dallas, 311; Delhi, 22; Desdemona, 55, 88; Draco Cyclops, 368; Earl of Tankerville (× Fairrieanum), 367; Eileen, 369; Ella, 127; Estella, 28; Fairrieanum, 166, (a warning), 36; (culture of), 36; Fairri-Goweri, 344; Fairri-tisii, 313; Florida, 86; Floryi, 23; Frenchay, 22; Gen. Joffre, 368; Golden Glory, 88; Goliath, 24; Greyii Ashlands var., 249; Griffin, 89; Hanburyannm, 25; Idina, 368; Iona, 56; insigne Purity, 31; i. Sanderæ, 353; i. Snow Queen, 28; Io, 102; Jessie, 156; Jezebel, 125; Julian, 52; Julius, 190; keighleyense, 94; Lady Evelyn James, 28; lævigatum, 254; Lawrenceanum Hyeanum Bank House var., 218; Leeanum (varieties of), 40; L. Gratrixiæ, 40, 41; Littleanum, 157; Lucy, 94; macranthum album, 180; Mary, 184; Measuresianum (× exul), 94; mirum, 26; Mogul, 87; Moonbeam (× Leeanum Prospero), 367; Mrs. E. S. Rashleigh, 83; Mrs. W. R. Lang, 51; Nirvina, 28, 364; nitens-Leeanum smaragdinum, 25; niveum, 166; Oneita, 127; Palladium, 28; philippinense, 223, 253; pictum, 307; Pliny, 51; Proserpine, 53; Pyramus, 84; Redwing, 125; Reginald Young var. Calliope, 369; Rœbelenii, 223, 253; Royal George, 369; Sa-ac-deræ, 354; San-Actæus, 354; Sandhurst, 25; Satyr, 53, 125; Schlegelii punctatum. 52; Sedenii, 97; Selene, 369; Strelsa, 24; Stonei, 206; Swallowtail, 25; Symmetry, 156; Talma, 53; Thisbe, 120; Thompsonii (× villexul), 121; Vendyck Invincible, 94; villosum Mrs. Cary Batten, 94; waltonense magnificum, 56.
Cypripediums, 20, 212, 333; compost for, 41; culture of, 41; from Bridge Hall, Bury, 94; hardy, 355; seedling, 21, 211; winter-blooming, 42.
Cyrtopodium cristatum, 200; Grisebachii, 200.

Darwin on Catasetum, 335; on Evolution, 68, 290; on Orchids, 195; origin of species, 5; survival of the fittest, 258.
Darwinism, 258. Davidson Cup, 62.
Day's collection of Orchid paiatings, 230.
Dendrobium Achilles, 239; Andromeda, 238; Ariel, 239; aureum, 66; Bartelsianum, 157; Bassattii, 116; Boundii Mrs. Alfred Rogers, 157; Burberryanum, 239; chessingtonense, 155; ciliatum annamense, 307; cucumerinum, 356; Cybele album, 120; Dearei, 333; Eleanor, 157; Ernestii, 156; formosum, 173, 324, 325, 327; f. Berkeleyi, 327; f. giganteum,

Dendrobium—
204, 324, 325, 327 ; f. sulphuratum, 328 ; Frederickii, 159 ; infundibulum, 333 ; Jamesianum, 333 ; Lady Colman, 84 ; Lyonsii, 182 ; Maccarthiæ, 211 ; nobile (peloriate), 137 ; n. virginale, 30 ; Papilio, 272 ; Phalænopsis, 178 ; Phryne, 157 ; pinifolium, 347 ; plumosum, 157 ; signatum (× Rolfeæ), 150 ; superbum Huttoni Southfield var., 119; taurinum, 360 ; Thwaitesiæ, 123 ; Toffiii, 360, 365, 375 ; Wardianum hololeucum, 167 ; W. Lowianum, 205.
Dendrobium house, 204.
Dendrobiums, 43, 111, 211 ; deciduous, 332 ; from Gatton Park, Reigate, 157 ; imported, 93 ; seedling, 43, 138.
Dendrochilum glumaceum, 119, 376.
Dendrocolla Pricei, 126.
Dendrophylax Fawcettii, 74 ; funalis, 73 ; Lindenii, 74.
Dendy, Prof., on Evolution, 290.
Descriptions, imperfect, 228, 229; of Orchids, 228, 229.
Dianthus Armeria deltoides, 67.
Dichæa brachypoda, 349; echinocarpa, 349 ; histrio, 349.
Dichæas from Costa Rica, 349.
Disa chrysostachya, 140 ; grandiflora, 301, (home-raised), 247.
Disas, 78, 235. Doritis tæniale, 175.

ENVIRONMENT, changes of, 292; inheritance of, 292.
Epidendrum amabile, 231 ; bicameratum, 164 ; funale, 73 ; Karwinskii, 164 ; kewense, 108 ; O'Brienianum (a. Mendelian experiment), 108, (a stable hybrid, 108, (× Dendrobium), 108, (true from seed), 280 ; Pentotis, 280 ; Porpax, 318 ; prismatocarpum, 164 ; retusum, 282 ; squalidum, 164 ; vitellinum, 251, 331.
Epidendrums, 358. Epigenesis, 293.
Epiphronitis Veitchii, 332.
Eria pilifera, 171, 255 ; sonkaris, 263.
Eulophia Ugandæ, 270 ; Watkinsonsii, 270.
Events of 1913, 1.
Evolution, 259, 290, 293 ; continuous, 291 ; a series of ontogenies, 291 ; by adaptive degradation, 95 ; by degeneration, 287 ; by progressive modification, 261 ; divergent, 290, 294 ; early views on, 290 ; how caused, 290 ; Language of, 261 ; Law of the accumulation of surplus energy, 291 ; of Orchids, 290, 295 ; organic, 290 ; progressive, 290, 291.
Exhibitions, American, 154.

FERTILISATION, self, 99.
Flies as pollen thieves, 34.
Flowers, problem of beauty, 195.
Fowler, J. Gurney, List of Orchid Awards, 160.
Fungus-Co-operation in Orchid roots, 68.

GARDENERS' Magazine, 48, 223.
German visit a French Nursery, 349.
Germ plasm, 292, 293.
Geographical races, 66, 295.
Grammangis Ellisii, 273 ; E. Dayanum, 274.
Grammatophyllum speciosum, 349, 372.

HABENARIA carnea, 305, 306 ; c. nivosa, 307 ; militaris, 305. 306 ; procera, 278 ; pusilla, 306 ; Roebelenii, 25, 116 ; Susannæ, 305, 306, 308.
Habenarias, 277.
Harrison, Mr. C. Alwyn, 160.
Hemipilia amethystina, 317 ; calophylla, 317.
Herbaria and their use, 228 ; importance of, 228, 230.
Herbarium, a collection of samples, 228 ; specimens, 199.
Herbert as Orchid hybridist, 131 ; on Hybrid Nomenclature, 130 ; Rules of Nomenclature, 101.
Heredity and Evolution, 258.
Hibberd, Shirley, on Nomenclature, 322.
Hippeastrums, hybrid, 101.
Holford, Sir George L., 201 : Robert L., 201.
Houlletia chrysantha, 329 ; Wallisii, 329 ; W. odontoptera, 329.
Hybridity, sign of, 102, 104, 135.
Hybridisation, 267, 292, 293, 295, 353, 355 ; and new characters, 227 ; aud the origin of species, 65 ; descent through, 292 ; progress in, 65 ; raisen d'etre, 269.
Hybrid, a mosaic, 267 ; combines two distinct ancestries, 267 ; Nomenclature, 130 ; races, 67 ; reproductive cells of, 267 ; segregates, 290.
Hybrids and the use of the ×, 102; bigeneric, 133, 135, 354 ; commercial value of, 355 ; complex, 98, 134 ; constant, 67 ; described as species, 135 ; development of, 268 ; fertile, 288 ; formula of parentage, 134, 135; genotypes, 67, 70, 71 ; increasing numbers of, 35 ; in nature, 66, 67, 290 ; mosaic, 67 ; Muitigencric, 134 ; names of, 134; natural, 98, 134 ; new, 30, 58, 95, 125, 158, 190 ; nomenclature of, 101, 103 ; (amended rules), 133 ; of identical composition, 104, 134 ; of unrecorded parentage, 35, 98, 161 ; primary, 103, 133, 267 ; (mated together), 37 ; recrossed with parents, 97, 104 ; registration of, 162 ; reproductive cells of, 67 ; secondary, 103, 134, 267, 352 ; specific names of, 134 ; stable, 67 ; sterile, 288 ; true from seed, 268 ; variation of, 98 ; vulgarity of, 37 ; wild, 65.

I'ANSON, Mr. G., 319.
Incompatibility, 267, 268.
Inheritance, 291, (blended), 268, 269 ; of acquired characters, 72, 227, 291 ; mosaic, 268, 269.
International Botanical Congress, 130, 133 319.
Ione paleacea, 349.
Ivies, classification of, 323.

JOHANNSEN on genotypes, 70.

KERNER on Hybrids, 67.
Kew, Orchid Collection, 296; gift of Orchids to, 4, 80; Temperate House, 295.
Kew Gardens Mutual Improvement Society, 374.

LÆLIA anceps, 36, 358; a. Chamberlainiana, 239; Boothiana (× B. Digbyana), 168; cinnabarina (× C. Mendelii), 166; crispa, 263; Digbyana, 11; Digbyano-Mossiæ, 13; glauca, 11; Gouldiana, 52; Gwennie, 156; Iona nigrescens (× Brassavola Digbyana), 183; Latona (× C. Mendelii), 168; longipes alba, 308; pumila, 359; p. alba, 321, 348; p. a. E. Ashworth, 348; p. a. Orchid Dene var., 341, 348; purpurata, 212, 263.
Lælias, Mexican, 143.
Læliocattleya amabilis, 310; a. Fascinator, 148; Aphrodite Our Queen, 219; Ariel, 87; Aureole, 85; Autodoin, 24; Avoca, 117, 125; Britannia Melanie, 25, 339; brugensis, 243; Canhamiana (× C. Mendelii), 186; C. Marguerite, 223; Cecilia, 56, 58; Chamberlainiana, 371; Cicely, 249; Clarie, 156; Corncrake, 243; Constance, 244; corneliensis, 114; Davidsoniæ, 308; Deciata, 179; Digbyano-Trianæ, 13; Dryad. 215; Dulce, 116, 122; Edwena, 303; Euripides, 116; Fascinator-Mossiæ var. Purity, 181; fausta, 267; Figaro, 308; Glaucus Westonbirt var., 114; Golden Beauty, 24; Goldilocks, 125; Gold-Star, 190; Gottoiana (× Cattleya Dowiana aurea), 120, (× Cattleya F. W. Wigan), 363; Haroldiana Bronze King, 180; Hector, 364; highburiensis, 238; Joy-Sander, 190; Lady Oliphant, 341; Ledru-Rollin, 340; luminosa, 60; Marguerite, 222; Marion, 114; Martinetii (× C. Dowiana), 310; Medina excelsior, 180; Miss Louisa Fowler, 248; Mrs. Evelyn Norrie, 339; Mrs. Temple var. Dreadnought, 24; Myrosa, 115; Neleus var. Sunspot, 364; Nestor, 366; Ophir (Charlesworthii), 86; Phœbe (× L. tenebrosa), 242; Queen-Helena, 348; Sandhurstiana, 341; Sunset, 244; Sunstar, 181; Swanboroughii, 37, 58, 126; Sylph, 215; Thorntonii, 14; Thyone McBean's var. 309; Tigris, 148; Tuttleæ, 162; Verona, 116; Vesuvius, 154.
Lamarck, 293.
Lawrence, Sir Trevor, 92; as an Orchidist, 93, 176; Bequest to Kew, 80, 176.
Lawrence Orchid Collection, 176.
Laws of Botanical Nomenclature, 101.
Leptolælia Veitchii, 212.
Leptotes bicolor, 211.
Lindley Herbarium, 230.
Liparis lacerata, 286; nana, 287.
Lissochilus, 112.
London Botanical Congress, 133.
Lotsy, origin of species by crossing, 65, 70.
Low, Hugh & Co., 202; Stuart & Co., 202.
Lowiara insignis, 203.
Lycaste Dyeriana, 144. Lycastes, 144.

MANCHESTER and North of England Orchid Society, 26, 55, 87, 118, 152, 186, 219, 249, 312, 342; result of annual competition, 220.
Masdevallias curtipes, 237; Shuttryana var Chamberlainii, 238; tovarensis, 173.
Masdevallias, 44, 276.
Massee, G., on Spot Disease, 252.
Manurial Aid to Orchids, 222, 264.
Maxillaria cristata, 49; Fletcheriana, 271.
Maxillarias, 174.
Megaclinium ugandæ, 270.
Mendel on constant hybrids, 67.
Mendel's original experiment, 268.
Mendelian characters, 293; inheritance, 292; paradox, 99; results, 293.
Mendelians and adaptation, 261; and their seed pans, 261.
Mendelism, 258, 261; and the Plant Breeder, 98; and quantitative differences, 269; "double dose," 37; Homozygotes, 65, 66, 70; Heterozygotes, 65, 70; its failures, 99; Johannsen's pure lines, 67, 70; segration of character, 67; testing a theory, 37.
Mice as pollen thieves, 34.
Miltonia Adonis, 181; Baroness, 181; Bleuana General Joffre, 339; B. lackenensis, 168; B. Peetersiæ, 170; B. Stevensii, 170; Charlesworthii, 170; Hyeana, 170; H. Le Conquerant, 170; Isabel-Sander, 171, 190, 245; J. Gurney Fowler, 180; Jules Hye de Crom, 170; Princess Victoria Alexandra, 181; Roezlii, 301; Sanderæ, 170; S. Bangtingiana, 244; S. Enchantress, 219; Schrœderiana, 355; St.-Andre, 169, 170, (× Roezlii), 171; vexillaria, 112, (and its varieties), 196, 236, (culture of), 3, (distribution of), 196, 197, (from Peru), 198, (natural conditions of), 197, (varieties of), 196; v. alba, 183, 198; v. albicans, 196, 197; v. ecuadorensis, 197; v. Hyeana, 183; v. illustris, 218; v. Lælia-Sander, 181; v. Lehmannii, 196, 197; v. Lyoth, 117, 148; v. Measuresiana, 196, 198; v. memoria G. D. Owen, 170, (hybrids of), 179; v. Rev. W. Wilks, 247; v. rubella, 198; v. solum, 181; v. superba, 198; White Admiral, 178; Warscewiczii xanthina, 337.

Miltonia hybrids, 170, 225, 226.
Miltonias, 359.
Miltonioda Ajax, 355.
Monachanthus viridis, 335.
Murder of a Plant Collector, 37, 227.
Mutation, 71; by loss of Factors, 71.
Mutations, 292.
Myanthus barbatus, 335.
Mystacidium, leafless, 74.

NAMES, altering, 323; alternative, 101; classical, 102, 104, 135; commemorative,

Names—
322 ; descriptive, 323 ; (adjectival), 102, (double), 101, 102 ; double, 323 ; duplication of, 102 ; florists, 101, 102, 323 ; geographical, 322 ; good, 322 ; incongruous, 102 ; necessity of, 72 ; "nomina nuda," 163 ; of hybrids, 133 ; personal, 323 ; polysyllabic, 104 ; probationary period for, 162 ; publication of, 135 ; single word, 103, 134 ; specific, 102, 104, 134. (capitalisation of), 32 ; synonymous, 162 ; to be amended, 103 ; trade, 323 ; transfer of, 135 ; unpublished, 163; value of, 322 ; varietal, 101, 102, 103, 104, 323 ; vernacular, 102, 104, 135.
Naming of garden plants, 321, 323.
Nanodes Medusæ, 112. Nasonia, 176.
National Relief Fund, 257, 351.
Natural Selection, 68, 195, 226, 293, 294.
Neobenthamia gracilis, 237.
Nesttia Nidus-avis, 287.
Nomenclature, binomial, 323 ; Brussels Rules, 103, 104, 135 ; common sense, 321 ; diverse systems, 102 ; Herbert's Rules, 101 ; Horticultural, 103 ; intelligible, 104 ; Linnean binomial system, 135, 322 ; Paris Rules, 101 ; of Hybrids, 101, 103, 130, 323 ; Orchid Stud-Book, 103 ; R.H.S. Committee, 103 ; R.H.S. Rules, 103 ; Rules of, 133, (how made), 104 ; stable 104 ; Vienna Rules, 103, 133, 135 ; world language, 322. Novelties, 270.
Nucleus, division of, 267.

Obituary—Rt. Hon. Joseph Chamberlain, 238 ; Frank Cypher, 350 ; George Gordon, V.M.H., 223 ; Henry Little, 157 ; Richard Le Doux, 209 ; Sir Trevor Lawrence, 7, 62, Dr. C B. Robinson, 37 ; John Gould Veitch, 350 ; Dr. A. R. Wallace, 5.
Odontioda Antonio, 158; Ashtonii, 216; Blushing Bride, 98 ; Bradshawiæ, 119 ; Cookson's var., 106 ; Fire King, 182 ; Perfection, 181 ; Brewii Highfield var., 217 ; Brunette, 107 ; Chantecleer, 98 ; Clive, 136 ; Colmanii, 125 ; crispilia, 310 ; Diana, 151 ; D. Gladys, 84 ; Doris, 59 ; Elsie, 151 ; Floryi, 56 ; Fowleriana, 183 ; fuscimum, 125 ; Graireana splendens, 148 ; Gratrixiæ, 190 ; Hemptinneana, 58, 114 : Isis, 248 ; Joan, 106, 148 ; Latona, 106, 190 ; L. Fowler's var., 106 ; L. Goodson's var., 24 ; L. Pearl, 98, 105 ; Leda, 190 ; Leonatus, 190 ; Madeline, 107 ; Margaret, 59 ; M. Westonbirt var., 58 ; Marion, 59 ; Mrs. F. O. Ogilvie, 151 ; Mrs. R. le Doux, 121 ; Othello, 158 ; Patricia, 107 ; Phyllis, 214 ; Prince of Galles, 182 ; Queen-Mary, 113 ; Royal-Gem, 106, 179 ; R.-G. Westonbirt var., 52 ; Rubens, 183 ; Schrœderi Lee's var., 363 ; S. Walton Gem, 121 ; Sibyl, 59 ; Stella, 248 ; Thompsoniæ, 56, 61 ; Vivienne, 158, 178 ; Zenobia, 119.

Odontoglossum Albion, 100 ; Aliceæ, 307 ; amabile, 97 ; a. splendens, 55 ; a. Star-light, 81 ; amandum magnificum, 220 ; amaranthum, 61 ; angustatum, 83, 127 ; Aquitania, 216 ; Arachne, 28 ; Aureole, 117 ; aurosum, 95 ; Bellamina, 178 ; Canary, 58 ; Chantecleer, 182 ; citrosmum, 143, Cleopatra, 25 ; Colossus, 87 ; crispum (and allies), 235 ; (with anther-bearing petals and lip), 99 ; c. Baroness, 179 ; c. Dell Sunrise, 214 ; c. Eugenie, 121 ; c. Golden Queen, 156 ; c. hololecum, 369 ; c. Iolanthe, 150 ; c. Lord Roberts, 372 ; c. Millie, 366 ; c. Mrs. J. Helm, 369 ; c. Prince of Wales, 163, 164 ; c. Queen of the Earth, 356 ; c Queen Maud, 118 ; Damaris, 85 ; Domingo de Larringo, 187 ; Doris, 217 ; Dusky-Monarch, 182 ; Edna, 159 ; Edwardii (hybrids, weighting spikes of), 166 ; Egyptian, 27 ; Elissa, 148 ; Ethelreda Borde Hill var, 214 ; excellens, 166 ; eximium Dell var., 149 ; e. solum, 219 ; E. Stanleyi. 356 ; e. xanthotes, 365 ; Fortuna, 190 ; fulgidum, 27 ; grande,, 332, (culture of), 76, (hybridising), 76 ; g. aureum, 362 ; g. Pittianum, 362 ; Helicon, 190 ; Helmuth, 179 ; Hercules, 56, 61 ; Herodotus, 190 ; Iconium, 190 ; igneum, 58 ; illustrissimum (× eximium), 86 ; i. Creole, 61 ; i. Dell var., 53 ; Invincible, 219 ; Irene, 190, 364 ; Iris, 190 ; Isidorus, 190 ; Jasper, 97 ; Jorisianum aureum, 178 ; Julius, 190 ; Jupiter, 22 ; King Arthur, 217 ; Lambeauianum, 367, (× excellens), 86 ; Leander, 220 ; L'Empereur, 89 ; Milo, 190 ; Minos, 345 ; Mirabeau var. Mastiff, 151 ; Mrs. Phœbe Fletcher, 154 ; Mogul, 148 ; nebulum, 187 ; Newlingii, 125 ; oakwoodiense, 145 ; Our Queen, 28 ; Papilio, 56, 61 ; percultum, 353 ; p. King George, 247 ; Pescatorei, 247 ; p. virginale Thwaites' var., 179 ; Queen Alexandrina, 181 ; Rolfeæ, 248. (× O. Pescatorei), 86, 97 ; Royal-Purple, 118 ; rubens, 28 ; Saudhurstianum, 59 ; Saturne flavescens, 22 ; S. violaceum, 24 ; Scottianum Mogul, 145, Siren, 122 ; St.-Andre, 86 ; spectabile, 97 ; Twyford Gem, 120 ; Uroanthum, 246 ; Uro-excellens, 343, 351 ; Vivienne, 59, Vuylcirrha, 117 ; waltonense Rosslyn var., 126 ; Zena, 149 ; Zulu, 369.
Odontoglossum, abnormal, 356 ; seed, 68, (sowing), 46 ; the genus, 354.
Odontoglossums, 44 ; and fungi, 167 ; from seed, 68 ; hybrid, 353 ; reversion in, 354 ; seedling, 45, 46, 68, 110, 138, (at Rawdon), 167.
Odontonia brugensis, 162 ; b. Guillaume Olyff, 163; Charlesworthii, 225, 241 ; Cholletii, 344 ; Cleverleyana, 218, 225 ; Eileen, 162 ; Guillaume Olyff, 162, 163 ; Longowoyi, 26 ; Lucilia, 95, 127 ; Magali-Sander, 286 ; M.-G. xanthotes, 286, 327, 342 ; Princess Marie Jose, 372 ; Roger Sander, 182.
Œnothera Lamarckiana, 71.
Oncidioda Cooksoniæ, 237 ; C. Grenadier, 151 ; Mauricei, 180, 190.

Oncidium bicallosum, 236 ; b. aureum, 339 ; Candelabrum, 280 ; concolor, 212 ; corynephorum, 346 ; Engelii, 47 ; Leiboldii, 361 ; L. velutinum, 362 ; Leopoldianum, 247, 248, 345 ; tenue, 269 ; tigrinum, 213 ; varicosum citrinum, 365 ; variegatum, 361, 362 ; velutinum, 362 ; zebrinum, 47
Oncidium, 79.
Ophrys etrusca, 100 ; Grampinii, 100.
Ophrys hybrids, 100.
Orchid Breeding, 37 ; bloom, structure of, 195 ; Catalogue, an old, 279 ; Collectors, hints for, 199 ; culture in Germany, 221 ; culture in the past, 279 ; flower mimicry, 195 ; Life Romance of a new, 163 ; Nomenclature Committee, 323 ; Notes and News, 31 62, 95, 127, 159, 191, 223, 255, 287, 319, 349 : Portraits, object of list, 96.
Orchid Review, 32, 37, 61, 160.
Orchid sales, 328 ; seeds (sowing), 46 ; germination of, 46 ; spot, 252 ; "The Versatile," 334.
Orchidists, 321, 322.
Orchids, American Exhibitions, 57 ; and Mr. Chamberlain, 238 ; as buttonholes, 296 ; as a hobby, 296 ; at Chelsea. 185 ; at Cheltenham, 123 ; at home, 89 ; at Jarvisbrook, 232 ; at Kew, 286, 296, 349 (in 1913), 126, (seventy years ago), 100 ; at Leyswood, Groombridge, 48 ; at Rawdon, East Yorks, 165 ; at the Philadelphia Exhibition, 370 ; autumn-blooming, 226 ; Bornean, 191 ; Cool treatment of, 213 ; cross-fertilisation, 195 ; "fleurs de mal," 195 ; from Penarth, 303 ; from Stamford Hill, 384 ; imported, 45, 168 ; importing. 199 ; in Brazil, 5 ; in season, 31, 61, 126 155, 222 ; in sphagnum moss, 168 ; in the War area, 347 ; leafless, 73 ; manure for, 222, 264 ; of Amboina, 227 ; of Mt. Kinabalu, 191 ; origin and development of, 227 ; pageantry of, 33 ; positions of, 174 ; prices in the past, 279 ; rainwater for, 264 ; seedling, 45, 211 ; seedling house at Rawdon, 167 ; structure of, 195 ; treatment of weakly plants, 18 ; type specimens of, 228, 229 ; under artificial light, 289.
Orchis, bee, 195 ; new British, 39.
Orchis incarnata, 39 ; mascula alba, 176 ; prætermissa, 39.
Organisms, unicellular, 291.
Origin of cultivated races, 259 ; of species, 294. (by crossing), 226, 290, 292, (without Natural Selection), 226.
Orchidology, international, 257.
Our Note Book, 33, 65, 97, 129, 161, 193, 225, 257, 289, 321.

PACHYPHYLLUM procumbens, 349.
Paphinia cristata, 49, 146, 308 ; c. Modigliana, 50 ; rugosa, 50.
Peristeria aspersa, 340 ; elata, 236.
Peziza coccinea, 261.
Phaiocalanthes, 79.
Phaius Ashworthianus, 308 ; irroratus, 102 ; simulans, 143, 254, 255 (culture of), 254 ; tuberculosus, 143, 254, 255 ; Wallichi Sanderiana, 152.
Phaius, 142 ; hybrids, 353.
Phalænopsis amabilis, 231, (albino of), 205 ; Ariadne, 87 ; grandiflora, 231 ; Lindeuii, 21 ; Lowii, 75 ; Rimestadiana, 231 ; Wilsonii, 75.
Phalænopsis, 142 ; seedling in glass tube, 69.
Photographic reproductions, 355.
Photographs, 355.
Phylogenetic history, 291.
Phytophiline, 208.
Plants, wonders and problems of the humbler life, 194.
Pleione pogonioides, 108.
Pleiones, 276, 330 ; used as a drug, 108.
Pleurothallis Barberiana, 167 ; Lankesteri, 271.
Pollen, stolen by mice, 34 ; thieving of, 33, 34.
Polystachya coriacea, 270.
PORTRAITS—ANCISTROCHILUS Thomsonianus, 376.—ANGRÆCUM citratum, 160 ; eburneum, 192 ; sesquipedale, 192, 352.—ANGULOA Cliftonii, 160 ; Ruckeri, 352.—BARKERIA elegans, 376 ; Lindleyana, 376 ; Skinneri, 376. — BRASSOCATTLEYA Cliftoni magnifica, 96 ; Shilliana, 192 — BRASSOLÆLIA Mrs. M. Gratrix, 320.—BULBOPHYLLUM Fletcherianum, 192.—CALANTHE lentiginosa, 320 ; Siebertiana, 64 ; Veitchii, 320 ; veratrifolia, 320.—CATTLEYA Ajax Orchidhurst var., 352 ; Andreana McBean's var., 64 ; Astron, 288 ; Drapsiana McBean's var., 128 ; Irene, 256 ; labiata, 224 ; Loddigesii alba Stanley's var., 192 ; Maggie-Raphael, 376 ; M -R. Dell var., 64 ; Mossiæ, 352 ; Percivaliana, 128 ; P. alba Lady Holford, 32, 64, 96 ; Sybil var. Lord Kitchener, 320 ; Tityus Shrubbery var., 160 ; Trianæ, 96, 160, 192 ; T. Hydra, 128, 192 ; T. Mrs. Phillips, 96 ; Warscewiczii, 256, 288 ; W. alba Firmin Lambeau, 288. —CIRRHOPETALUM Mastersianum, 32, 96.—CŒLOGYNE brachyptera, 376 ; burfordiensis, 224 ; cristata, 160 ; Dayana, 96.—CYMBIDIUM Alexanderi Hamilton-Smith's var., 96 ; eburneo-Lowianum, 352 ; insigne, 160 ; Pauwelsii, 160 ; Schlegelii punctatum, 64 ; Tracyanum, 352, 376.—CYPRIPEDIUM aureum virginale, 128 ; bellatulum, 64, 96 ; bourtonense, 32 ; Constance var. James H. Veitch, 352 ; Desdemona, 96, 128 ; Dreadnought, 32 ; Godefroyæ, 376 ; Io, 352 ; Julian, 64 ; Leeanum var. Gratrixiæ, 64 ; Maudiæ, 32, 160 ; mirum, 256 ; montanum, 192 ; Niobe, 320 ; Nirvana, 376 ; Pyramus, 96 ; P. Garnet, 96 ; Shillianum, 288, 320 ; spectabile, 192 ; Stonei platytænium, 352 ; ventricosum, 192. — DENDROBIUM crassinode, 376 ; Falconeri, 256 ; Rubens, 96 ; superbum Huttonii Southfield var., 160 ; thyrsiflorum, 352.—DISA Veitchii, 320.—

Portraits—
EPIDENDRUM Ellisii, 256.—GALEANDRA Devoniana, 352.—GONGORA grossa, 256.—GRAMMATOPHYLLUM speciosum. 376.—HABENARIA Susannæ, 352.—HOULLETIA Wallisii, 352.—LÆLIA anceps Chamberlainiana, 288; pumila alba Orcnid Dene var., 352; purpurata alba, 352.—LÆLIOCATTLEYA Aphrodite, 320; Ariel, 96; Canhamiana, 288; Fascinator-Mossiæ var. Purity, 224; Haroldiana Bronze King, 192; luminosa Canary 376; Medina Excelsior, 224; Miss Louisa Fowler, 288; Mrs. Evelyn Norrie, 352; Nella Westonbirt var, 32; Pallas, 352; Sunstar, 376.—LYCASTE gigantea, 192; Tunstilii, 32. — MASDEVALLIA, Ephippium, 376; Shuttryana, 288; Veitchiana, 352. — MILTONIA Bleuana, 128; B. grand flora, 160; B. Hessle var., 256; Charlesworthii, 224; Lælia-Sander, 224; St.-Andre, 192; vexillaria albescens, 320; v. J. Gurney Fowler, 224; v. Lælia-Sander, 288; v. memoria G. D. Owen, 376; v. Rev. W. Wilks, 256.—ODONTIODA Bradshawiæ Perfection, 192; Clive, 192; Cooksoniæ Fowler's var., 320; Royal Gem Westonbirt var., 64; Sybil, 96; Zenobia, 128.—ODONTOGLOSSUM amabile Ashlands' var., 96; Aiglon majesticum, 256; ardentissimum Norman Cookson, 320; a. Violette, 320; Atheltum, 256; Canary, 64, 96; Cleopatra, 32; C. Rosefield var., 96; Colossus. 128; crispum, 192; c. nobilius, 224; c. Persimmon, 224; eximium solum, 256; Helius, 256; illustrissimum, 192; King Arthur, 224; Lakinæ, 192; Leander, 160; Mirabeau, 96; M. Mastiff, 160; Mirandus, 256; Mogul, 160, 192, 376; Mrs. W. Thompson, 256; Papilium, 256; Queen Alexandrina, 192, 224; Rossii majus, 128; Sandhurstianum, 96; Scottianum Mogul, 192; Wilckeanum Schroederianum, 320.—ODONTONIA Charlesworthii, 256, 288; Cleverleyana, 256, 288; Guillaume Olyff, 192; Lucilia, 128.—ONCIDIODA Mauricei, 192. — ONCIDIUM cheirophorum, 224; corynephorum, 288; Leopoldianum, 288. PAPHINIA cristata, 64 —PHAIOCALANTHE Cooksoni, 192 —PHALÆNOPSIS Aphrodite, 64; Lueddemanniana, 32; Schilleriana, 224. — PLEIONE Hookeriana, 256. — SACCOLABIUM giganteum, 128.—SCUTICARIA Steelei, 376.—SOPHROCATTLEYA November, 376; Wellesleyæ Westonbirt var., 128.—SOPHROLÆLIA Felicia Fowler's var., 376. — VANDA Amesiana, 320; cœrulea Westonbirt var., 192, 352; Hookeriana, 352; Lowii var. Le Moinierii, 96; Sanderiana, 320; suavis, 224.—VANILLA Pompona, 224, 256.—VUYLSTEKEARA insignis, 256.—ZYGOPETALUM Sir Trevor var. Brewii, 256.
Primula obconica, 259.
QUEKETTIA, 176.
RAIN-WATER, 264. Ralli, Mr. Pandeli, 2, 61.
Recapitulation of phylogenetic history, 291.
Reichenbach, Prof., 322.
Reichenbachian Herbarium, 129, 206, 208, 230; contents of, 207; condition of, 207; Removal of, 130.
Reichenbach's drawings, 207; types, 230.
Renanthera Imschootiana, 139, 175, 205, 236; pulchella, 213, 271.
Revue Horticole, 257.
Rhynchostylis guttata, 281; retusa, 281, 282.
Robinson, Dr. C. B., 37, 227.
Rolfe, Mr. R. A., 62; Bornean Orchids, 191.
Romance of a New Orchid, 163.
Roots, chlorophyll-bearing, 75.
Rostellum of an Orchid, 258.
Royal Horticultural Society, 22, 49, 82, 114, 146, 178, 214, 242, 307, 338, 363; Amateur Exhibits, 194; and the War, 319, 321; at the Central Hall, Westminster, 289, (proposed) Autumn Show, 226; cage for Orchids, 33; Chelsea Show, 180, 193; Holland House Show, 103, 218; Hybrid Orchid Register, 62, 63, (Registration Form), 35; meetings, 35, 350; Nomenclature Committee, 323; Orchid Committee, 63; Registration of Hybrid Orchids, 130; Scientific Committee, 127, 374; Rules of Hybrid Nomenclature, 130.
Rumphius, Amboina Orchids, 227.
SACCOLABIUM Berkeleyi, 281; glomeratum, 271; littorale, 281; violaceum, 281.
Sander, List of Orchid Hybrids, 160.
Saprophytes, 73.
Saprophitism in Orchids, 287.
Sarcochilus, leafless, 75; luniferus, 75; phyllorhizus, 75; usneoides, 75.
Satyrium Bolusii, 144; corifolium (× carneum), 144; Guthriei, 144; natural hybrid, 144.
Schombocattleya spiralis, 304.
Seedlings, 302; fly destruction to, 111; Preparation of seed-pans for, 46; Preparation of store pots for, 110; stray, 98; treatment of, 110.
Selection and improvement, 269; functional, 293; purposive, 293.
Sexual process, 268, 291. Shakespeare, 260.
Sigmatogyne, 176.
Sigmatostalix bicornuta, 271.
Slugs, 315, 331, 128. Sobralias, 212,
Societies—Massachusetts Horticultural, 370; New York Horticultural, 369; Pennsylvania Horticultural, 370.
Sophrocatlælia Dorila, 158; D. Mrs. Hatfield, 179; Niobe Orchid Dene var., 119; Sibyl, 246; St.-Arilda, 53; Sunloch, 146.
Sophrocattleya Blackii vars., 338; Chamberlainiana, 239; Doris, 140; Pearl, 366, 369; November, 366; Wellesleyæ Westonbirt var., 116.
Sophrolælia Felicia Fowler's var., 364.
Sophronitis grandiflora, 38, 111, 358, (× Brassavola Digbyana), 38, (× Cattleya granulosa), 245.

Sophronitis hybrids, 38, 39, 358.
Southgate, Mr. W. L., 48.
Spathoglottis, 77; edinensis, 30; pulchra, 17.
Species, 66, 71, 227, 267, 290, 292, 294, 295; and hybrids, 267; and varieties, 65, 66; Jordanian, 71; limits of, 72; Linnean, 74. 72; mere abstractions, 65, 70; Hybrids, 288; Origin of, 5, 67, 71, 72; (by crossing), 65, 70; variability of, 71, 72.
Species-hybrids, 71.
Spiranthes gracilis, 313; Romanzoffiana, 314.
Spot Disease of Orchids, 252.
Stanhopea guttulata, 239.
Stanhopeas, 172, 251. Stereochilus, 176.

TÆNIOPHYLLUM, 75. Thrip, 175.
Topsyturveydom, 259. Thunias, 111, 172.
Trade catalogues, 323.
Trichocentrum panamense, 270.
Trichoceros, 176. Trichopilias, 359.
Trichotosia pilifera, 171. Type drawings, 231.
Type specimens, 228, 229, 230, (co-types), 239, 230.

UNIT-CHARACTERS, 292, 293.

VANDA Batemanii, 254; cœrulea, 37, (spot on), 251; c. Rogersii, 31; cœrulescens, 179; cristata, small-flowered, 221; Lowii, 6, 35, (in Borneo), 6; Maroniæ, 338; pumiia, 168; striata, 220.
Vandas, 44, 331.
Variability, 71; inheritable, 71, 72, 227, 295.
Variation, 68, 196, 291, 293; a commonplace of hybridisation, 267; due to crossing, 259; geographical, 196; in secondary hybrid Odontiodas, 106; of secondary hybrids, 267; significance of, 258; through crossing, 726.
Variations, 293; survival of, 295.
Varietal names of hybrids, 134.
Varieties, crossing, 133.
Variety-hybrids, 70. Ventilation, 357.
Vuylstekeara insignis, 219, 225.

WALLACE, Distribution of Orchids, 7; on Darwinism, 7; on Mendelism, 7; on Mutation, 7; on Natural selection, 7; Origin of species, 5; Travels in Btazii, 5; Travels in the Malay Archieelago, 6.
War, 257; and Orchidology, 257.
Westonbirt, 201.
White, Mr. W. H., 351, 375.
Wilson, Mr. E. H., 63. Woodlice, 128.

XYLOBIUM elatum, 270; ecuadorense, 270.

ZYGOPETALUM Blackii, 341; brachystalix, 200; Mackayi, 20; Prainianum, 308, 317.
Zygopetalums, 264. Zygotes, 291, 293.

LIST OF ILLUSTRATIONS.

Aërides odoratum at Marlfield . . 209
Angræcum sesquipedale . . . 284
Brassavola Digbyana . . . 9
Brassavola Digbyana, capsule of. . 10
Brassocattleya Cliftonii magnifica . 14
Brassocattleya Hyeæ 15
Brassocattleya Leemanniæ . . . 13
Brassocattleya Maroniæ . . . 12
Brassocattleya sandhaghensis . . 16
Brassocattleya Veitchii Holford's var. 11
Brassolælia Helen 17
Calanthe Cooksoniæ 177
Cattleya Sybil and its varieties . . 265
Cattleya Sybil var. Lord Kitchener . 297
Cattleya Warscewiczii Frau Melanie Beyrodt 240
Colman, Sir Jeremiah, Bart., V.M.H. *Frontispiec.*
Cycnoches densiflorum . . . 260
Cypripedium Leeanum var. Gratrixiæ 41
Cypripedium philippinense . . 253
Dendrobium formosum giganteum . 324
Dendrobium nobile, a peloriate . . 137
Dendrophylax funalis 73
Grammangis Ellisii 273
Habenaria carnea 305
Habenaria militaris 305
Habenaria Susannæ 305
Houlletia Wallisii 329
Lt.-Col. Sir Geo. L. Holford, K.C.V.O. 201
Miltonia St.-Andre 169
Odontioda Clive 136
Odontioda Latona var. Pearl. . . 105
Odontioda Queen Mary . . . 113
Odontoglossum amabile var. Starlight 81
Odontoglossum Scottianum var. Mogul 145
Odontonia Charlesworthii . . . 241
Odontonia Magali - Sander var. xanthotes 337
Oncidium Leiboldii 361
Oncidium Leopoldianum . . . 345
Orchid Nursery at Jarvisbrook, Bird's-eye view 232
Orchid seedlings grown in glass tubes 69
Orchids: a corner of Messrs. Cypher's group at Chelsea 185
Orchids at Enfield; View in Cool house 233
Paphinia cristata 49
Rhynchostylis guttata . . . 281
Schombocattleya spiralis . . . 304
Spiranthes gracilis . . . 313

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